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SCHNITZER STEEL INDUSTRIES (AND CALBAG METALS)
CSM Site Summary

SCHNITZER STEEL INDUSTRIES (AND CALBAG METALS)

Oregon DEQ ECSI # 2355

12005 N. Burgard Road
DEQ Site Mgr: Alicia Voss
Latitude: 45.6102°
Longitude: -122.7724°
Township/Range/Section: 2N/1W/35

River Mile: 4 East bank

LWG Member ☐ Yes ☒ No

Upland Analytical Data Status: ☐ Electronic Data Available ☒ Hardcopies only

1. SUMMARY OF POTENTIAL CONTAMINANT TRANSPORT PATHWAYS TO THE RIVER

The current understanding of the transport mechanism of contaminants from the uplands portions of the Schnitzer Steel/Calbag site to the river is summarized in this section and Table 1, and supported in following sections.

1.1. Overland Transport

Overland transport of contaminants from the uplands to the river is expected to be minimal at the Schnitzer Steel Industries' (SSI) site. Soils with low levels of PCBs, PAHs, and metals are limited to deeper areas that are not in contact with surface water runoff (most of the area is paved). The armored nature of the shoreline minimizes migration of this deep soil to the river.

1.2. Riverbank Erosion

The Willamette River shoreline is currently covered with concrete riprap and is lightly vegetated in the upper portions. Old timber pilings left over from the Oregon Shipbuilding Corporation are located offshore in this area. No seeps or evidence of erosion were observed by Bridgewater (2000a). The shoreline of the International Terminal Slip is covered with dock structures on its southern side, unclassified fill at the head, and natural bank along its northern side (Integral et al. 2004).

1.3. Groundwater

No preferential pathways for groundwater movement have been identified at Schnitzer Steel or Calbag Metals. Chlorinated solvent plumes have been identified in the area of the former Northwest Oil Company tanks and in the northwest portion of the site. Insufficient data are available to assess whether the relatively low concentration chlorinated solvent plumes are a current source of contamination to the Willamette River.

1.4. Direct Discharge (Overwater Activities and Stormwater/Wastewater Systems)

Overwater activities have occurred all along the shoreline of SSI and within the slip throughout the history of operations on this site. Leakage of petroleum products from the tank farm, spills of fuel and releases of contaminated ballast waters from ship operations, groundwater seeps, as well as stormwater runoff may have contaminated sediment in these areas (DEQ 1999, 2004).

Stormwater from the former shipyard discharged directly to the river, which could have possibly included commingled hazardous materials. Currently, stormwater collected at the SSI property is recycled into the scrap metal shredder operation. Elsewhere on the SSI site, stormwater is routed to seven NPDES-permitted outfalls, each serving a specific drainage basin that encompasses several different land use operations [see Supplemental Figure 1 from SSI's (2003) Stormwater Pollution Control Plan (SWPCP)]. An analysis of stormwater data for each basin by Bridgewater (2003c) found overall downward trends in concentrations and occasional exceedances of permit benchmark values since extensive BMPs have been instituted in each of the drainage basins. However, DEQ (2003, pers. comm.) has noted "chronic" exceedances of 1200Z benchmarks for some of these basins.

1.5. Relationship of Upland Sources to River Sediments

See Final CSM Update.

1.6. Sediment Transport

The Schnitzer and Calbag Metals properties are situated along the upstream side of the International Terminal Slip and along the main river stem from the slip to about RM 4.1. The channel area in this portion of the river is characterized as transitional/depositional in the Portland Harbor Work Plan (Integral et al. 2004). The Sediment Trend Analysis® (STA®) results suggest that the nearshore area along this site, both along the river frontage as well as into the slip, alternates episodically between net accretion and net erosion. The STA® results suggest that the channel offshore of the site is in dynamic equilibrium. Time-series bathymetric change data over the 25-month period from January 2002 through February 2004 (Integral and DEA 2004) for the area shows small-scale (mostly less than 1 foot) sediment accretion along the Schnitzer side of the International Slip. Along the river frontage, no bathymetric change data were obtained above the –10 foot NAVD88 contour due to the presence of in-water structures and moored vessels. From the –10 to the –30 foot NAVD88 contours, areas of net sediment erosion (up to 1 foot in extent) predominate. From the –30 foot NAVD88 contour out into the main channel, areas of no measurable change are dominant. Finally, in the channel offshore of the upstream end of the site, a borrow area previously dredged –60 foot NAVD88 shows sediment accumulations up to about 1 foot in extent.

2. CSM SITE SUMMARY REVISIONS

Date of Last Revision: March 4, 2005

3. PROJECT STATUS

Activity		Date(s)/Comments
PA/XPA	☐	
RI	☐	Phase I and II RI for Burgard Industrial Park (Bridgewater 2002a, 2003b)
FS	☐	
Interim Action/Source Control	☐	Stormwater BMPs for Burgard Industrial Park (Bridgewater 2003c)
ROD	☐	
RD/RA	☐	
NFA	☐	

DEQ Portland Harbor Site Ranking (Tier 1, 2, or 3): Tier 2

4. SITE OWNER HISTORY

Owner/Occupant	Type of Operation	Years
Schnitzer Investment Corporation - **owner**	Real estate	1972-present
Lessees		
Schnitzer Steel Industries - **lessee**	Metals recycling, truck maintenance and repair, warehousing,	1960s to present
Calbag Metals - **lessee**	Recycling of non-ferrous metals	? to present
Various owners and lessees including U.S. Surplus Properties Corp., Beall Pipe and Tank, William and Elizabeth Shenker, Port of Portland and Broadway Holding Co.	Upland log storage and log rafting (1963 onward), filling of shipways (early 1960s to 1972), grain storage, steel pipe and tank manufacturing	1945 to 1972
U.S. Government, City of Portland, Oregon Shipbuilding - **owner**	Ship construction and other shipyard activities. Site was filled and slip was dredged prior to construction of shipyard and associated shipways.	1941 to 1945
Gatton Family - **owner**	Site generally undeveloped except for some oil storage along what is now the southwest edge of the International Terminal (Northwest Oil, predecessor of Time Oil).	Prior to 1941
Northwest Oil - **owner**	Petroleum products bulk storage terminal	1938

5. PROPERTY DESCRIPTION

The Schnitzer Investment Corporation's (SIC) 200-acre Burgard Industrial Park property (the Park) is located on the east side of the Willamette River at approximately RM 4 (Figure 1). This site summary incorporates the 11-acre International Terminal Slip and a number of other contiguous properties owned by SSI, as well as Calbag Metals, which is located in the southwestern portion of the Park adjacent to SSI.

The current site and surrounding land use is industrial in nature. Site features include offices, warehouses, and other buildings; paved or graveled work surfaces, roadways, and parking lots; railroad tracks; utilities (water, sewage, stormwater, electrical); small, above-ground storage facilities for fuels and oils, and some undeveloped areas. The majority of the land in the southwest portion of the Park is paved.

The site was originally low-lying marsh and lagoons that were filled with dredged material as part of the construction of the shipyards that operated during WWII. The International Terminal that divides the Burgard Industrial Park was also dredged at that time.

SSI applied for a dredging permit from the U.S Army Corps of Engineers on July 31, 2003, to conduct maintenance dredging of Berths 4 and 5, which are located on SSI's Willamette River shoreline. The proposed dredging footprint covers about 6.6 acres, with a maximum length of 1,600 feet and a maximum width of 220 feet. The project dredging volume would be approximately 61,00 cubic yards (cy), with another 40,000 cy to be dredged, as needed, for ongoing maintenance over the remainder of the permit duration (5 years). As of November 2004, this dredging project is underway. On November 6, 2003, SSI applied for a renewal of their lease from the Oregon Department of State Lands (DSL) for their wharf structure located in the slip.

6. CURRENT SITE USE

Unless stated otherwise, information in this section was obtained from Bridgewater (2000a).

Schnitzer Steel Industries. The SSI facility encompasses the southwest portion of the Burgard Industrial Park and the International Terminal Slip. The Willamette River abuts the SSI property to the west, NW Pipe to the east, and Cargill's grain elevators to the south. Large areas of the property are paved, leaving only small areas in the southwest portion and along the railroad tracks, the Willamette, and slip unpaved. Two main buildings, Building B and the Mold Loft Building, are found onsite.

SSI receives materials such as automobiles, appliances, discarded steel members, and other ferrous products via ship, truck, or occasionally rail. They process the scrap metal using a shearer or portable acetylene torches. Since 1980, white goods such as home appliances and autos are shredded for metals recovery in the southwestern corner of the site.

Metals are separated from non-metal material after shredding. Non-metal material is disposed of at local landfills. SSI accepts no hazardous materials. Waste materials generated at the site include automobile shredder residue (historically contained PCBs), non-metallic debris, used oil and antifreeze, solvents, and other solid wastes. SSI is a conditionally exempt hazardous waste generator. Waste materials are either recycled or disposed of by offsite contractors or is recycled onsite.

The automobile shredder residue (ASR) process is fully enclosed in the former shipyard Plate Shop building and uses an enhanced metals recovery and waste minimization system. The ASR is used as an alternative daily cover at the Columbia Ridge landfill.

SSI operates a maintenance facility in the northern end of Building B to repair onsite equipment such as loaders, cranes, trucks and the shredder and shearer. They also receive and store bulk commodities at the site, which are unloaded by three rail-mounted cranes along the International Terminals Slip and stored in the northern portion of the site (either on pavement or in a building). A water-supply well (140 feet deep) for the shredder cooling system was drilled in the southwest part of the site in 1979. Occasionally, this water is also used for dust suppression.

Ten aboveground storage tanks holding waste oil, hydraulic oil, and other petroleum products are located on the site. All have secondary containment. Two 10,000-gallon underground tanks that stored diesel and gasoline were removed in 1988. A 270-gallon water tank is used to store water for the shredder's recycled cooling water system.

Schnitzer Investment Company has employed a series of operational and structural BMPs to facilitate compliance with their NPDES 1200Z permit. Stormwater at the SSI facility is either recycled in the shredder cooling water system or conveyed to 15 outfalls along the slip or river under a general NPDES stormwater permit. These outfalls are listed in Section 10.3.2 below. Effluent from two of the outfalls passes through oil/water separators before being discharged. Effluent from a third outfall is treated using a Vortech™ treatment system and sand filtration. Most catch basins have absorbent filters, and about 80 percent of the stormwater catch basins have an inverted outflow pipe to trap oil and grease. There are 14 oil/water separators on the SSI property alone.

Calbag Metals. Calbag Metals occupies approximately 2 acres in southwest corner of the Park where the facility receives, briefly stores, and transports non-ferrous metals offsite for recycling. Most scrap materials are obtained from private parties. Calbag does not accept batteries, fluorescent light fixtures, sealed electric motors, transformers, containers with residual products, and appliances. Accepted material is sorted and stored in steel drop boxes or totes for transport to Calbag's main facility on Nicolai Street in Portland. Aluminum, copper, and stainless steel are the primary materials handled at the facility. Generally, no cutting or processing of scrap metal is performed here. An outside vendor services forklifts and other equipment. A 250-gallon aboveground diesel storage tank is located in the northeast corner of the property.

Calbag Metals does not have a stormwater permit. Stormwater runoff is conveyed to catch basins and discharged to the Park's storm drain system. Oil stains were observed on pavement near a stormwater catch basin located in the northern portion of property, suggesting that oily runoff has flowed to the catch basin (Bridgewater 2000a).

7. SITE USE HISTORY

Prior to 1941, the property was largely undeveloped except for bulk petroleum storage in six aboveground storage tanks near the river. During WWII, the site was the location of a large shipyard owned by the Oregon Shipbuilding Corporation. The deep draft International Terminals Slip was created during this period, and portions of the marshy, low-lying areas on the site were filled. Over 450 ships were built on this property from 1941 to late 1945. There were 11 identical shipways along the western edge of the site. Sewage and stormwater was conveyed to outfalls along the river. At the end of the war, activities onsite ended immediately. Between 1945 and 1972, industrial use was limited following dismantling of the shipyard, but activities included metals fabrication, filling of shipways associated with the former shipyard, log rafting, and upland log storage. Schnitzer purchased the property in 1972 for use as a metals scrap yard. SSI began their automobile shredding operation in 1980. A fire occurred in a stack of crushed automobile bodies on the site in 1997 and was extinguished by the Portland Fire Department using water pumped from the river. Catch basins were sealed off, and the ponded water was pumped into the shredder cooling tanks. All catch basins were clean of debris and all solid debris was removed from the fire area (Bridgewater 2000b).

8. CURRENT AND HISTORIC SOURCES AND COPCS

The understanding of historic and current potential upland and overwater sources at the site is summarized in Table 1. The following sections provide a brief overview of the potential sources and COPCs at the site requiring additional discussion. The source of the following information is Bridgewater (2001a), unless otherwise noted.

8.1. Uplands

Historic:

- Documented releases of oil from the former aboveground tanks near southwest shoreline of slip prior to 1941.
- Discharges of shipyard sanitary sewer wastes and stormwater directly to the Willamette River. At one time Outfall 1/WR-184, along the southern edge of the site, was blocked and eventually breached, discharging stormwater to subsurface soils. This line has since been repaired.
- Assembly, blasting, and painting on the former shipways. Typical paints included anticorrosive and antifouling additives. This area was filled over a 10-year period in the 1960s and 1970s.
- Storage of auto shredder residue from the metal scrap yard. Historically, auto shredder residue has contained low levels of cadmium, lead, and PCBs (Bridgewater 2001a).

Current:

- Documented soil and groundwater contamination at some locations. Sampling has identified PCBs, TPH, PAHs, and lead in soils. Documented deep (greater than 100 feet bgs) groundwater contamination. Shallow and deeper groundwater impacted by chlorinated volatile organics. The plumes have the potential to impact adjacent river sediments.
- Stormwater that discharges directly to the slip and the Willamette has had elevated concentrations of oil and grease and metals (DEQ 2003, pers. comm.).

8.2. Overwater Activities

☒ Yes ☐ No

Historic:

After ships were assembled in the shipways, they were moored along the southern edge of the slip for outfitting. This included installing interior mechanical and electrical features and deck painting. Incidental spills of paint residue and fuels into the slip were possible during this time. In 1945, a fire destroyed the dock and shops along the south side of the dock. Several ships were damaged, and cranes fell into the slip as the dock collapsed (Bridgewater 2001a).

Current:

Scrap metal sometimes arrives at the SSI dock in the International Terminals Slip by barge. Bulk materials are loaded and off-loaded by using three dock-mounted cranes. Current uses of the dock may have resulted in inadvertent releases of diesel, motor oils, or other contaminants to the river, as described further below. The SSI dock and wharf structure are leased by SSI from Oregon DSL.

8.3. Spills

Known or documented spills at the SSI/Calbag site were obtained either from DEQ's Emergency Response Information System (ERIS) database for the period of 1995 to 2004, from oil and chemical spills recorded from 1982 to 2003 by the U.S. Coast Guard and the National Response Center's centralized federal database [see Appendix E of the Portland Harbor Work Plan (Integral et al. 2004)], from facility-specific technical reports, or from DEQ correspondence. These spills are summarized below.

DEQ's ERIS database contains numerous incidents of oily sheens observed on the river surface in the International Terminals Slip, which are not listed below. Barge activities associated with Schnitzer Steel's operations are the suspected sources of these spills, but some could have originated from stormwater outfalls.

Date	Material(s) Released	Volume Spilled (gallons)	Spill Surface (gravel, asphalt, sewer)	Action Taken (yes/no)
5/22/00	Diesel	Unknown	Willamette River	Unknown
3/29/01	Oil/water ballast	Unknown	Willamette River	Unknown
9/02/03	Diesel	10	Deck of barge, 1 gallon to Willamette River	No

9. PHYSICAL SITE SETTING

The Schnitzer Burgard Industrial Park is fairly level with ground surface elevations ranging between 20 to 30 feet above msl. The topography gently slopes from east to west across the site, with the exception of a steep embankment along the Willamette River and the slip channel (DEQ 1999). The Park lies along the northeastern bank of the Willamette River where deposits from high-energy Pleistocene floods formed a peninsular terrace at the convergence of the Willamette and Columbia rivers. The southern two-thirds of the Schnitzer Burgard Industrial Park lie within the Willamette River's 100-year flood zone (DEQ 1999). Schnitzer Steel and Calbag Metals are located in the southwest corner of the Schnitzer Burgard Industrial Park (see Figure 1).

9.1. Geology

The near-surface geology at the Schnitzer Burgard Industrial Park is dominated by the presence of dredge fill placed during the development of the industrial park in the late 1930s and during filling of the shipways in the later 1960s and early 1970s (Bridgewater 2002a). The dredge fill, consisting of a mixture of brown sand and silty sand, varies in thickness across the Schnitzer Burgard Industrial Park from 25 to 35 feet along the river and thinning to 15 feet along the eastern edge of the site (Bridgewater 2001b).

Six soil probe borings and six monitoring wells have been completed at SSI and Calbag Metals during site investigations (Bridgewater 2002a, 2003b). The maximum depth explored was 30 feet bgs. One industrial water supply well is present on the Schnitzer Steel property, located in the southern corner of the property [see Supplemental Figure 2-1 from Bridgewater (2002a)]. The industrial water supply well was completed to a depth of 142 feet bgs.

Based on the findings from the site investigations, the SSI and Calbag Metals properties are underlain by dredge sand fill to a depth of 10 to 25 feet. Quaternary silt, sandy silt, and silty sand are present beneath the fill to124 feet bgs. Below this, the Quaternary deposits consist of coarser material composed of sand and gravel and may represent the Pleistocene flood gravels. In an industrial water production well on an adjacent property to the east (Northwest Pipe Company), the coarser sand and gravel were present to a depth of 220 feet bgs (CH2M HILL 2000). The coarser-grained material in these areas may represent Pleistocene flood gravels and/or possibly the Troutdale Formation. Between 220 and 258 feet bgs, silty clay and clay with minor lenses of gravel were noted (CH2M HILL 2000). The latter unit may represent the Sandy River Mudstone.

9.2. Hydrogeology

Localized zones of perched groundwater may be present in the dredge fill (Bridgewater 2001b). Such perched zones have been encountered at a depth of about 15 to 20 feet on nearby properties. The presence and extent of the perched zones are expected to be variable and related to the presence of higher silt content in the dredge fill. The groundwater flow gradients in the perched zones are anticipated to be variable and relatively low; and discharge from the perched groundwater zones either discharges toward the river or infiltrates downward into the underlying dredge fill and alluvial deposits (Bridgewater 2001b). A more continuous unconfined groundwater zone is anticipated within the alluvial deposits underlying the dredge fill (Bridgewater 2001b) and potentially including the lower portion of the dredge fill itself. The groundwater flow direction in the alluvial groundwater zone is generally to the west, toward the Willamette River, with local variations in groundwater flow expected. The alluvial groundwater zone is anticipated to discharge to the river (Bridgewater 2001b).

Based on groundwater level measurements in the soil probe borings and monitoring wells completed at the site (Bridgewater 2002a, 2003b), the depth to groundwater ranged from 12 to 20 feet bgs. The groundwater sampled during the site investigations appears to be from the unconfined alluvial groundwater zone. Site-specific information related to groundwater gradient is not available.

Schnitzer Steel is bounded on the west by the Willamette River and on the north by the International Terminal Slip. Stormwater discharge lines from the site discharge at outfalls along the Willamette River and the International Terminal Slip (Bridgewater 2003c) [see Supplemental Figure 1 from SSI's Storm Water Pollution Control Plan (Bridgewater 2003c)]. No seeps were identified at the Schnitzer Steel or Calbag Metals sites (GSI 2003).

10. NATURE AND EXTENT (*Current Understanding*)

The current understanding of the nature and extent of contamination for the uplands portions of the site is summarized in this section. When no data exist for a specific medium, a notation is made.

10.1. Soil

10.1.1. Upland Soil Investigations ☒ Yes ☐ No

During the Phase I RI, Bridgewater (2002a) collected soil samples from a push-probe exploration in the southwest area where ASR is temporarily staged [see Supplemental Figure 2-1 from Bridgewater (2002a)]. Minimum and maximum concentrations are provided below:

Analyte	Minimum Concentration (mg/kg)	Maximum Concentration (mg/kg)
Total Petroleum Hydrocarbons (TPH)		
TPH-G	20 U	20 U
TPH-D	50 U	289
TPH-Dx (Heavy Oil Range)	100 U	415
Polycyclic Aromatic Hydrocarbons (PAHs)		
Anthracene	0.33 U	2.14
Benzo(a)pyrene	0.33 U	2.46
Benzo(b)fluoroanthene	0.33 U	2.2
Benzo(k)fluoroanthene	0.33 U	1.47
Chrysene	0.33 U	2.73
Fluoranthene	0.33 U	4.88
Pyrene	0.33 U	5.04
LPAH	0.33 U	3.71
HPAH	0.33 U	24.47
Volatile Organic Compounds (VOCs)		
Tetrachlorethene	0.1 U	0.111
Polychlorinated Biphenyls (PCBs)		
	0.67 U	0.922
Metals		
Antimony	0.5 U	3.6
Arsenic	2.44	7.59
Cadmium	0.5 U	0.808
Chromium	13.1	47.2
Copper	13.3	133
Lead	2.9	529
Mercury	0.1 U	0.232
Nickel	14.7	33.9
Zinc	35.6	995

mg/kg = milligrams per kilogram (ppm)
U = Not detected at reporting limit.

Samples were also collected by Bridgewater in the area of the former shipyard sanitary sewer and stormwater discharges as well as the shipways [see Supplemental Figure 2-1 from Bridgewater (2002a)]. Elevated concentrations of arsenic, cadmium, copper, lead, and zinc were detected in soil samples collected from 18 feet in MW-2, located in the far northwest corner of the SSI property. PCBs, diesel-range TPH, heavy-oil-range TPH, and total PAHs were also detected in deep soil samples from MW-2. Bridgewater found low concentrations of heavy oil TPH and total PAH in soil samples collected from 7-12 feet bgs in MW-1 in the area of the former Northwest Oil Company tanks (see Supplemental Figure 2-1).

10.1.2. Riverbank Samples

☒ Yes ☐ No

During the Phase II RI, Bridgewater (2003b) collected soil and groundwater samples along the bank to determine if there were current pathways for site contaminants to reach the river. A series of push-probes were advanced 25-30 feet bgs in the northwest portion of SSI's property to delineate the extent of PAHs, PCBs, TPH, and metals in subsurface soils [see Supplemental Figure 3 from Bridgewater (2003b)]. Concentrations of these analytes were all lower than DEQ's soil matrix and applicable draft Generic Risk-based Concentrations (RBCs). Deep soil in this area is not in direct contact with the river due to the armored nature of the site shoreline (Bridgewater 2003b).

10.1.3. Summary

Soil contamination appears to be limited to low levels of PCBs, PAHs, and metals in deep soils in the area of the former oil tank farm. This soil is isolated from surface water runoff, and the armored nature of the shoreline minimizes migration of this deep soil to the river. Low levels of PAH, PCBs, TPH were detected from samples collected near the river bank, In the ASR staging area, arsenic, copper, lead, mercury, nickel, and zinc were detected at elevated levels in shallow soil samples.

10.2. Groundwater

The current groundwater chemistry data set consists of groundwater samples collected from six temporary well points, six monitoring wells, and one industrial water supply well. The industrial water supply well was sampled for one event. Five of the six monitoring wells have been monitored routinely by Bridgewater since installation in January 2002.

10.2.1. Groundwater Investigations

☒ Yes ☐ No

In December 2001 and January 2002, two soil probe borings and six monitoring wells were completed by Bridgewater [see Supplemental Figure 2-1 from Bridgewater (2002a)]. Groundwater samples were collected from a temporary well point installed in the one of the soil probe borings and from each of the six monitoring wells. The groundwater sample collected from the temporary well point was analyzed for VOCs, and the groundwater samples collected from the monitoring wells were analyzed for TPH, VOCs, SVOCs, and metals. Several of the groundwater samples also were analyzed for PCBs. A groundwater sample was collected from one onsite industrial water supply well (Well No. 6) [see Supplemental Figure 2-1 from Bridgewater (2002a)], which was analyzed for VOCs.

In April 2003, Bridgewater (2003b) completed four additional soil probe borings [see Supplemental Figure 3 from Bridgewater (2003b)]. Groundwater samples were collected from temporary well points in each of the four soil probe borings and were analyzed for VOCs.

The industrial water supply well (Well No. 6) was completed in 1979 to a depth of 142 feet bgs and is screened much deeper (132 to 142 feet bgs) in the Quaternary alluvium than the monitoring wells at the site. The Oregon Water Resources Department well identification number associated with this industrial water supply well is MULT 1825.

10.2.2. NAPL (Historic & Current)

☐ Yes ☒ No

No evidence of NAPL has been reported.

10.2.3. Dissolved Contaminant Plumes

☒ Yes ☐ No

Groundwater samples collected during past investigations have had detections of VOCs (chlorinated solvents), SVOCs, and dissolved metals. Specific constituents historically detected in groundwater at the site are detailed in the table below. The most recent groundwater detections are detailed in a subsequent section.

VOCs	SVOCs	Dissolved Metals
Tetrachloroethene (PCE)	3,4-Methylphenol	Arsenic
Trichloroethene (TCE)		Barium
cis-1,2-Dichloroethene (cis-1,2-DCE)		Chromium
Vinyl Chloride		Copper

The single SVOC detected in groundwater was 3,4-methylphenol. This SVOC was detected in one monitoring well one time, and was not detected again in subsequent groundwater samples collected from the monitoring well.

Low concentrations of dissolved metals detected in the alluvial aquifer zone include arsenic, barium, chromium, and copper. The measured concentrations of dissolved metals are similar to concentrations measured throughout the Portland area and could represent a naturally occurring groundwater concentration (Bridgewater 2002a).

Plume Characterization Status

☐ Complete ☒ Incomplete

VOCs have been detected in the northwest corner of the SSI property (see Figure 2). The VOC plume appears to be isolated to the shallow alluvium in this portion of the SSI property. The groundwater sample from the onsite industrial water supply well (deeper alluvium) was non-detect for VOCs. Insufficient data have been collected to determine the downgradient extent of the plume; however, concentrations of VOCs detected at the downgradient monitoring points are relatively low.

Plume Extent

Based on information reviewed, GSI identified a VOC plume in the area of the former Northwest Oil Company tanks and in the northern end of the former shipyard shipways. A historical release of oil from these tanks has been documented (Bridgewater 2001b); however, chlorinated solvents were not reportedly stored in the tanks or used in the area. The source of the chlorinated solvents in groundwater has not been determined.

Min/Max Detections (Current situation)

The most recently reported groundwater samples were collected in March and April 2003 (Bridgewater 2003b, 2003c). The minimum and maximum detections in groundwater are provided in the table below.

Analyte	Minimum Concentration (µg/L)	Maximum Concentration (µg/L)
VOCs		
Tetrachloroethene, (PCE)	< 1	32.7
Trichloroethene, (TCE)	< 1	20.1
cis-1,2-Dichloroethene (cis-1,2-DCE)	< 1	14.3
Vinyl Chloride	< 1	1.23
Dissolved Metals		
Arsenic	< 1	37.7
Barium	< 1	113
Chromium	< 1	1.1
Copper	< 1	1.06

Current Plume Data

The VOC groundwater plume was estimated by GSI using groundwater data collected from monitoring wells supplemented with data collected from temporary wells points. The estimated lateral extent of the chlorinated solvent plume identified at the site is shown in Figure 2.

Preferential Pathways

No preferential groundwater pathways have been identified at the site. No information on the relationship between subsurface utilities and shallow groundwater has been reviewed.

Downgradient Plume Monitoring Points (min/max detections)

Monitoring well MW-2 is located approximately 55 feet from the Willamette River in the downgradient portion of the identified chlorinated solvent plume. Minimum and maximum concentrations of VOC constituents detected in groundwater samples collected from this well are summarized in the following table.

Analyte	Minimum Concentration (µg/L)	Maximum Concentration (µg/L)
VOCs		
Tetrachloroethene, (PCE)	< 1	7.76
Trichloroethene, (TCE)	< 1	8.90
cis-1,2-Dichloroethene (cis-1,2-DCE)	< 1	1.97

Visual Seep Sample Data

☐ Yes ☒ No

No seeps have been identified at the site (GSI 20

Nearshore Porewater Data

Nearshore porewater data have not been collected at the site.

Groundwater Plume Temporal Trend

Groundwater temporal trends have not been evaluated because the temporary well points were sampled only once and the monitoring wells have been sampled only twice for VOCs.

10.2.4. Summary

Groundwater investigations have included groundwater data collected from six temporary well points, six monitoring wells, and one industrial well. Five of the six monitoring wells have been monitored routinely since installation in January 2002. Chlorinated solvent plumes have been identified in the area of the former Northwest Oil Company tanks and in the northwest portion of the site. Insufficient data have been collected to determine the source and downgradient extent of the plume; however, concentrations of VOCs detected at the downgradient monitoring points are relatively low. No preferential groundwater pathways have been identified, so any potential plume movement likely will be in the general direction of groundwater flow.

10.3. Surface Water

10.3.1. Surface Water Investigation ☐ Yes ☒ No

SSI has employed structural and operational BMPs from their Stormwater Pollution Control Plan at their properties in the Burgard Industrial Park. The stormwater drainage basins and discharge systems for this area of the park are shown in Supplemental Figure 1 from SSI (2003). There are 15 active, 3 abandoned, and 2 remnant outfalls in this portion of the Burgard Industrial Park, as listed below:

- **Outfall 1/WR-184** (Willamette River)
- **Outfall 2/WR-109** (Willamette River)
- **Outfalls 3A & 3B/WR-110** (Willamette River)
- **Outfalls 4A & 4B/WR-111** (Willamette River)
- **Outfalls 5A & 5B/ WR-#? (confirm)** (Willamette River)
- **Outfall 6A/WR-112** (Willamette River)
- **Outfall 7/WR-113** (Willamette River)
- **Outfall 8** (Willamette River): abandoned
- **Outfall 9** (Willamette River): abandoned
- **Outfall 10/WR-116** (International Terminals Slip)
- **Outfall 11/WR-118** (International Terminals Slip): remnant of historical shipyard, no longer discharges stormwater
- **Outfall 12** (International Terminals Slip): abandoned
- **Outfall 13/WR-#?(confirm)** (International Terminals Slip)
- **Outfall 14/WR-119?(confirm)** (International Terminals Slip)
- **Outfall 15/WR-120** (International Terminals Slip)
- **Outfall 16/WR-121** (International Terminals Slip)
- **Outfall 17/WR-122** (International Terminals Slip): remnant of historical shipyard, no longer discharges stormwater.

Calbag Metals does not have a stormwater permit. Stormwater runoff is conveyed to catch basins and discharged to the park's storm drain system.

10.3.2. General or Individual Stormwater Permit (Current or Past) ☒ Yes ☐ No

Permit Holder	Permit Type	Permit Number	Start Date	Outfalls	Volumes	Parameters/Frequency
SSI	GEN12Z	108103	?	18/WR-123?	?	Standard[1]/twice yearly

[1] Standard GEN12Z permit requirements include pH, oil and grease, total suspended solids, copper, lead, and zinc. *E. coli* may also be required.

Do other non-stormwater wastes discharge to the system? ☐ Yes ☒ No

10.3.3. Stormwater Data ☐ Yes ☒ No

10.3.4. Catch Basin Solids Data ☒ Yes ☐ No

A sediment sample was collected from a stormwater catch basin in 1997 and analyzed for TCLP metals. Only barium (1 mg/kg) and chromium (0.33 mg/kg) were detected at concentrations below characteristic waste levels (Bridgewater 2000b).

10.3.5. Wastewater Permit ☐ Yes ☒ No

10.3.6. Wastewater Data ☐ Yes ☒ No

10.3.7. Summary

Prior to the implementation of a Stormwater Pollution Control Plan and operational and structural stormwater BMPs for Burgard's drainage basins, stormwater was likely discharged directly to the river and slip. Currently, stormwater is either recycled into the shredder operation at SSI or discharged through 15 outfalls along the river and slip under an NPDES permit. According to DEQ (2003, pers. comm.), permit benchmarks for stormwater have been exceeded most often for stormwater from the SSI property. Low concentrations of barium and chromium were detected in a single catch basin sediment sample on SSI property in 1997 (Bridgewater 2000a,b).

Calbag Metals does not have a stormwater permit, and their stormwater runoff is conveyed to catch basins and discharged to the park's storm drain system.

10.4. Sediment

10.4.1. River Sediment Data ☒ Yes ☐ No

Since 1997, sediment samples have been collected during four investigations within the Willamette River in the vicinity of SSI/Calbag (Figure 1). The largest data set was collected in 2003 by Floyd Snider McCarthy (FSM) during a sediment investigation of the International Terminals Slip (Survey WLCITC03). They collected six surface and subsurface sediment samples at several locations along the main stem of the river and within the slip (FSM 2003). SSI (1998) collected a single sediment sample at the mouth of the slip in 1998 (Survey WLCITH98). Weston (1998) collected surface and subsurface sediment from two locations along the main stem of the river offshore from SSI in 1997 (SurveyWR-WS198). Finally, two surface and subsurface sediment samples were collected during the Round 1 sediment investigation (Survey LWG01; Integral 2004). Sediment concentrations from all of these investigations are summarized in Table 2.

During Bridgewater's Phase I RI, a surface soil sample was collected beneath the discharge point for Outfall 7/WR-113, located in the northern portion of the site along the river in the area of the former Northwest Oil Company tanks. Arsenic, antimony, cadmium, chromium, copper, lead, mercury, nickel, and zinc all exceeded Portland Harbor sediment baseline concentrations. Copper was detected as high as 660 mg/kg.

A soil sample was also collected in the area of the suspected plugged storm drain line discussed in Section 8. Only one metal, chromium (47.2 mg/kg), was detected in a sample from a depth of 12 feet at a concentration slightly greater than the Portland Harbor sediment baseline value (Bridgewater 2002a).

10.4.2. Summary

See Final CSM Update.

11. CLEANUP HISTORY AND SOURCE CONTROL MEASURES

11.1. Soil Cleanup/Source Control

Schnitzer Investment Corporation has implemented a SWPCP at their properties in the Burgard Industrial Park. Bridgewater (2003c) performed a review and assessment of their BMPs and generally found that most operational BMPs are being properly implemented. Structural BMPs in 10 of the 13 basins onsite have either sand filters, oil/water separators, Storm Water Management ™ water treatment units, or Vortechnics ™ treatment units.

Two underground storage tanks (diesel and gasoline) were removed from the SSI property in

1988.

11.2. Groundwater Cleanup/Source Control

No groundwater source controls have been conducted at the site.

11.3. Other

11.4. Potential for Recontamination from Upland Sources

See Final CSM Update.

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EDR. 2002. EDR Environmental Atlas, Portland Harbor, Multnomah. OR. Environmental Data Resources, Southport, CT.

Figures:

Figure 1. Site Features
Figure 2. Extent of Impacted Groundwater

Tables:

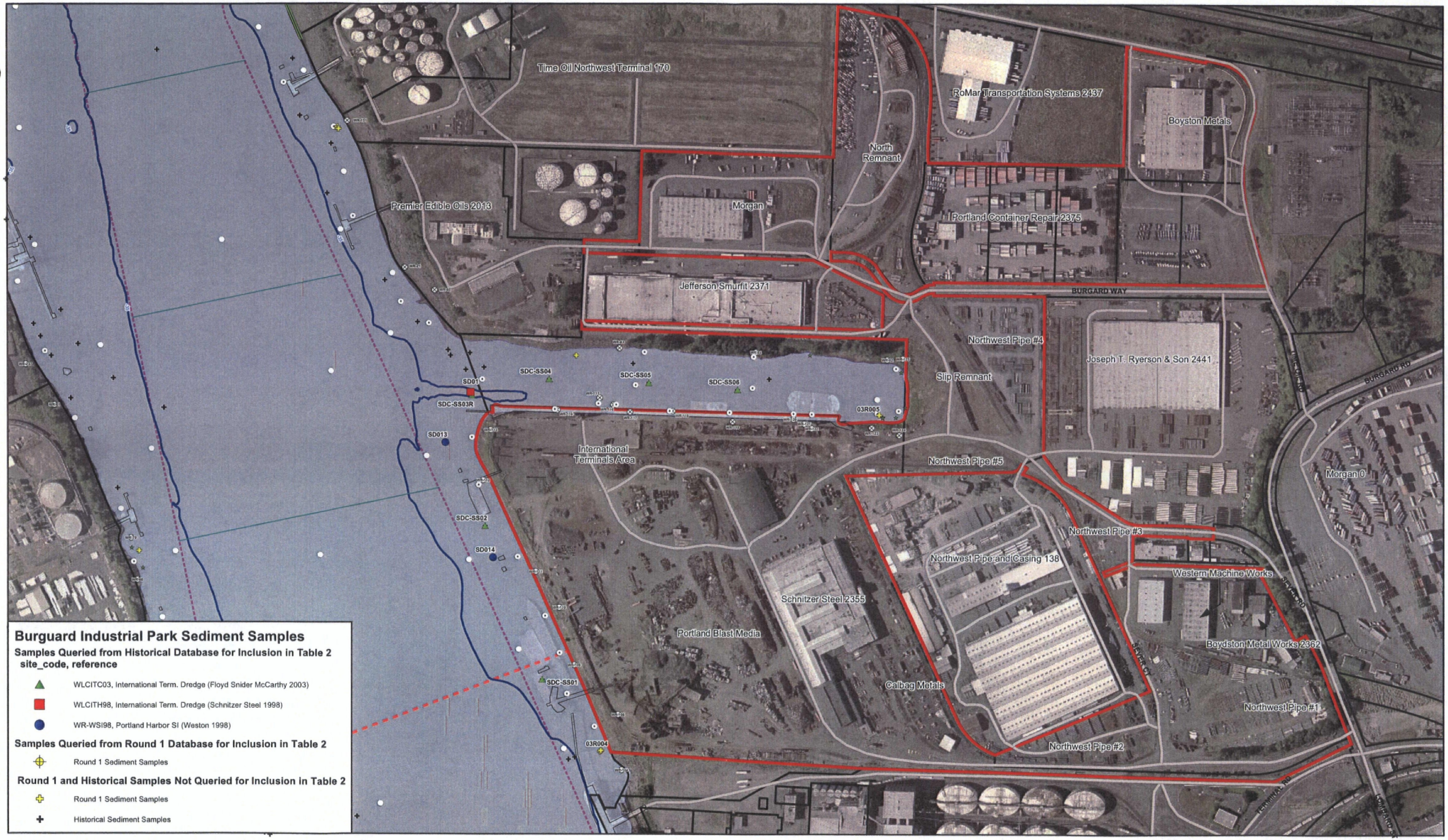
Table 1. Potential Sources and Transport Pathways Assessment
Table 2. Queried Sediment Chemistry Data

Supplemental Figures:

Figure 1. Stormwater Pollution Control Plan Site Map (SSI 2003)
Figure 2-1. Phase I Explorations-SW Area (Bridgewater 2002a)
Figure 3. Monitoring Well and Push Probe Locations - SSI Area (Bridgewater 2003b)

FIGURES

Figure 1. Site Features
Figure 2. Extent of Impacted Groundwater



integral

LWG Lower Willamette Group

Map Document: (C:\GIS\Projects\Portland_Harbor\LWG-Map-Projects\Conseptual_Site_Model\Sample_Locations.mxd)
Plot Date: 03/08/2005
Areal Photo Date: October 2001.
Base Map features from Portland Metro's RLIS.

The City of Portland Outfall mapping information is based on available records; no warranty, expressed or implied, is provided as to the completeness or accuracy of the information. Current layer updated June 2004.

City Outfalls
City Outfalls (Abandoned)
Non-City Outfalls
Seep Photo Location (Not location of actual Seep)

Selected ECSI Site Property Boundary
35ft. Contour (NAVD 88)
River Miles
Docks & In-water Structures
Navigation Channel

Human Use Areas
Dockside Worker
Recreational Beach Use
Transient

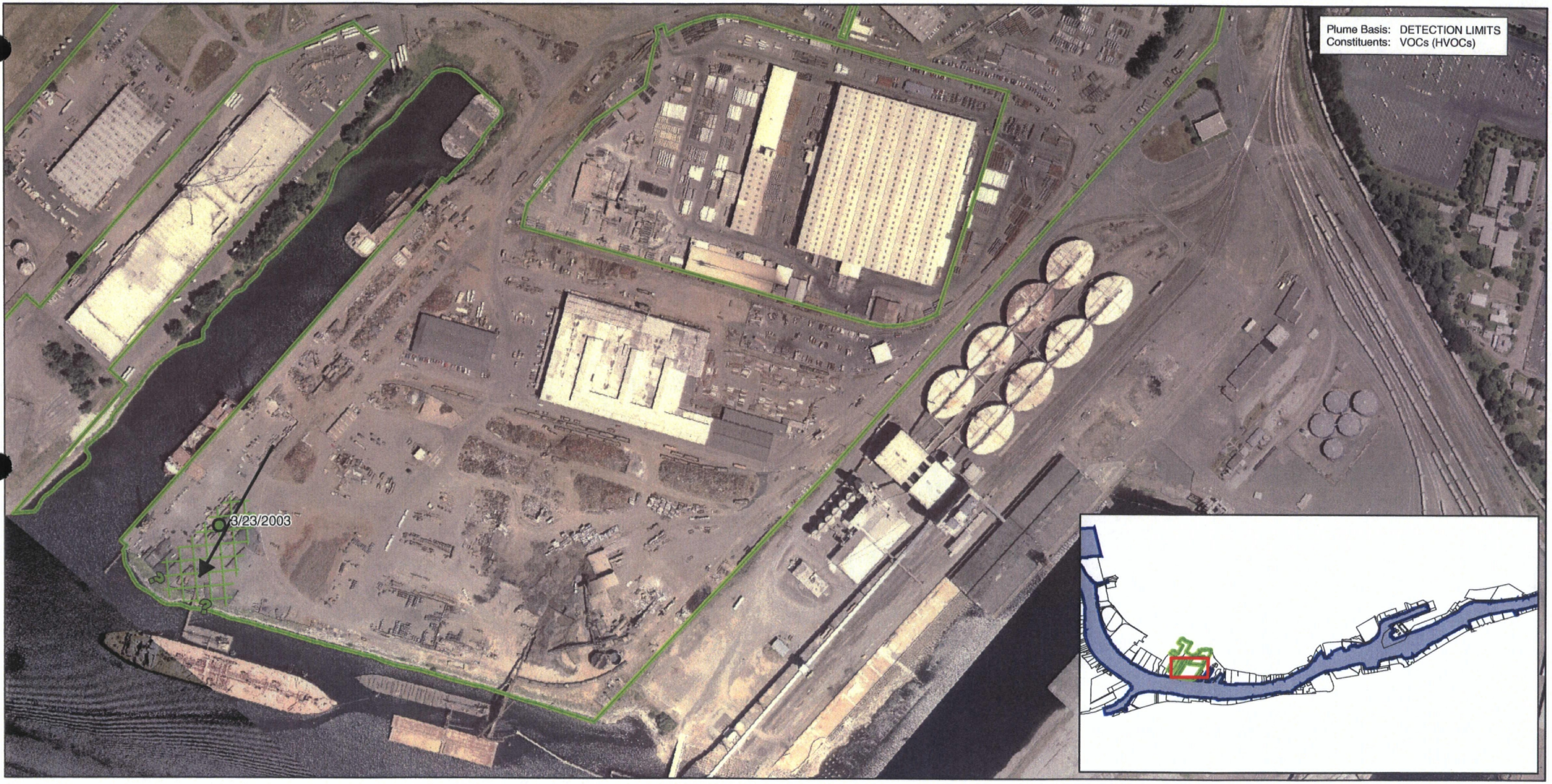
LWG Round 2 Proposed Sediment Samples
Surface Sample Only
Core & Surface Sample

0 150 300 600 Feet

DRAFT

DO NOT QUOTE OR CITE. This document is currently under review by US EPA and its federal, state, and tribal partners, and is subject to change in whole or in part.

Figure 1-Site Features
Portland Harbor RI/FS
Conceptual Site Model
Burgard Industrial Park
ECSI 2355



0 250 500 Feet

FEATURE SOURCES:
Transportation, Water, Property, Zoning or Boundaries: Metro RLIS.
ECSI site locations were summarized in December, 2002
and January, 2003 from ODEQ ECSI files.

Map Creation Date: August 11, 2004

File Name: Fig2_BurgardSchnitzer_SummaryMap.mxd

LEGEND

Site Boundary

General Groundwater Flow

Maximum Detection Location

Contaminant Type

VOCs (HVOCs)

Extent of Impacted Groundwater

For details, refer to plume interpretation table in CSM document.

Single or isolated detection of COI's. Extent or continuity of impacted groundwater between sample points is uncertain. Color based on contaminant type.

Estimated extent of impacted groundwater area. Color based on contaminant type.

Figure 2
Portland Harbor RI/FS
Burgard Industrial Park - Schnitzer Steel
Upland Groundwater Quality Overview

Groundwater Solutions Inc.

LWG LOWER WILLAMETTE GROUP

TABLES

Table 1. Potential Sources and Transport Pathways Assessment
Table 2. Queried Sediment Chemistry Data

Schnitzer Steel Industries (and Calbag Metals) #2355

Table 1. Potential Sources and Transport Pathways Assessment

Last Updated: March 4, 2005

Potential Sources	Media Impacted					COIs															Potential Complete Pathway				
						TPH			VOCs																
Description of Potential Source	Surface Soil	Subsurface Soil	Groundwater	Catch Basin Solids	River Sediment	Gasoline-Range	Diesel - Range	Heavier - Range	Petroleum-Related (e.g. BTEX)	VOCs	Chlorinated VOCs	SVOCs	PAHs	Phthalates	Phenolics	Metals	PCBs	Herbicides and Pesticides	Dioxins/Furans	Butyltins	Overland Transport	Groundwater	Direct Discharge - Overwater	Direct Discharge - Storm/Wastewater	Riverbank Erosion
Upland Areas																									
A Location of former Northwest Oil Co. tanks	✓	✓	✓					✓	✓		✓						✓					?			
Former shipyard sanitary sewer and stormwater discharges				✓	?				?	?	?						?							✓	
Former shipyard shipways	✓	✓	?							?	✓						✓					?			
ASR on ground surface in SW area	✓	?															?	?						✓	
Stormwater outfalls					✓			✓								✓									
Overwater Areas																									
B Dock operations					✓			✓	✓														✓		
Other Areas/Other Issues																									

Notes:

All information provided in this table is referenced in the site summaries. If information is not available or inconclusive, a ? may be used, as appropriate. No new information is provided in this table.

✓ = Source, COI are present or current or historic pathway is determined to be complete or potentially complete.

? = There is not enough information to determine if source or COI is present or if pathway is complete.

Blank = Source, COI and historic and current pathways have been investigated and shown to be not present or incomplete.

UST	Underground storage tank
AST	Above-ground storage tank
TPH	Total petroleum hydrocarbons
VOCs	Volatile organic compounds
SVOCs	Semivolatile organic compounds
PAHs	Polycyclic aromatic hydrocarbons
BTEX	Benzene, toluene, ethylbenzene, and xylenes
PCBs	Polychorinated biphenols

Table 2. Querried Sediment Chemistry Data.

Surface or Subsurface	Analyte	Number of Samples	Number Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
surface	Aroclor 1016 (ug/kg)	2	0	0						3.9 U	40 U	22	3.9 U	3.9 U
surface	Aroclor 1242 (ug/kg)	2	1	50	141	141	141	141	141	40 U	141	90.5	40 U	40 U
surface	Aroclor 1248 (ug/kg)	2	0	0						3.9 U	310 U	157	3.9 U	3.9 U
surface	Aroclor 1254 (ug/kg)	2	2	100	58.7	1500	779	58.7	58.7	58.7	1500	779	58.7	58.7
surface	Aroclor 1260 (ug/kg)	2	1	50	42.2	42.2	42.2	42.2	42.2	42.2	650 U	346	42.2	42.2
surface	Aroclor 1221 (ug/kg)	2	0	0						7.7 U	79 U	43.4	7.7 U	7.7 U
surface	Aroclor 1232 (ug/kg)	2	0	0						3.9 U	40 U	22	3.9 U	3.9 U
surface	Polychlorinated biphenyls (ug/kg)	2	2	100	242 A	1500 A	871	242 A	242 A	242 A	1500 A	871	242 A	242 A
surface	Butyltin ion (ug/kg)	1	1	100	8	8	8	8	8	8	8	8	8	8
surface	Dibutyltin ion (ug/kg)	1	0	0						5 U	5 U	5	5 U	5 U
surface	Tributyltin ion (ug/kg)	3	3	100	29.5	110	65.5	57	57	29.5	110	65.5	57	57
surface	Monobutyltin trichloride (ug/kg)	1	1	100	15.3 J	15.3 J	15.3	15.3 J	15.3 J	15.3 J	15.3 J	15.3	15.3 J	15.3 J
surface	Dibutyltin dichloride (ug/kg)	2	2	100	17 J	33.3 J	25.2	17 J	17 J	17 J	33.3 J	25.2	17 J	17 J
surface	Tributyltin chloride (ug/kg)	2	2	100	33.2	64	48.6	33.2	33.2	33.2	64	48.6	33.2	33.2
surface	Tetrabutyltin (ug/kg)	3	0	0						5 U	5.9 U	5.57	5.8 U	5.8 U
surface	Total solids (percent)	3	3	100	50.4	66	56.5	53	53	50.4	66	56.5	53	53
surface	Total organic carbon (percent)	5	5	100	1	2.4	1.48	1.38	1.41	1	2.4	1.48	1.38	1.41
surface	2,3,7,8-Tetrachlorodibenzo-p-dioxin (pg/g)	2	2	100	0.274 NJ	0.72 NJ	0.497	0.274 NJ	0.274 NJ	0.274 NJ	0.72 NJ	0.497	0.274 NJ	0.274 NJ
surface	Tetrachlorodibenzo-p-dioxin (pg/g)	2	2	100	3.32 NJ	13.2 NJ	8.26	3.32 NJ	3.32 NJ	3.32 NJ	13.2 NJ	8.26	3.32 NJ	3.32 NJ
surface	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (pg/g)	2	2	100	0.502 NJ	2.98 NJ	1.74	0.502 NJ	0.502 NJ	0.502 NJ	2.98 NJ	1.74	0.502 NJ	0.502 NJ
surface	Pentachlorodibenzo-p-dioxin (pg/g)	2	2	100	3.67 NJ	19.6 NJ	11.6	3.67 NJ	3.67 NJ	3.67 NJ	19.6 NJ	11.6	3.67 NJ	3.67 NJ
surface	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (pg/g)	2	2	100	0.811 NJ	3.98 NJ	2.4	0.811 NJ	0.811 NJ	0.811 NJ	3.98 NJ	2.4	0.811 NJ	0.811 NJ
surface	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (pg/g)	2	2	100	5.97 NJ	18.2 NJ	12.1	5.97 NJ	5.97 NJ	5.97 NJ	18.2 NJ	12.1	5.97 NJ	5.97 NJ
surface	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (pg/g)	2	2	100	2.53 NJ	10.5 NJ	6.52	2.53 NJ	2.53 NJ	2.53 NJ	10.5 NJ	6.52	2.53 NJ	2.53 NJ
surface	Hexachlorodibenzo-p-dioxin (pg/g)	2	2	100	32.1 NJ	124 NJ	78.1	32.1 NJ	32.1 NJ	32.1 NJ	124 NJ	78.1	32.1 NJ	32.1 NJ
surface	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (pg/g)	2	2	100	145 NJ	446 NJ	296	145 NJ	145 NJ	145 NJ	446 NJ	296	145 NJ	145 NJ
surface	Heptachlorodibenzo-p-dioxin (pg/g)	2	2	100	296 NJ	984 NJ	640	296 NJ	296 NJ	296 NJ	984 NJ	640	296 NJ	296 NJ
surface	Octachlorodibenzo-p-dioxin (pg/g)	2	2	100	1360 NJ	4220 NJ	2790	1360 NJ	1360 NJ	1360 NJ	4220 NJ	2790	1360 NJ	1360 NJ
surface	2,3,7,8-Tetrachlorodibenzofuran (pg/g)	2	2	100	1.05	8.74 D	4.9	1.05	1.05	1.05	8.74 D	4.9	1.05	1.05
surface	Tetrachlorodibenzofuran (pg/g)	2	2	100	10.2 NJ	96.3 NJ	53.3	10.2 NJ	10.2 NJ	10.2 NJ	96.3 NJ	53.3	10.2 NJ	10.2 NJ
surface	1,2,3,7,8-Pentachlorodibenzofuran (pg/g)	2	2	100	0.644 NJ	3.66 NJ	2.15	0.644 NJ	0.644 NJ	0.644 NJ	3.66 NJ	2.15	0.644 NJ	0.644 NJ
surface	2,3,4,7,8-Pentachlorodibenzofuran (pg/g)	2	2	100	0.981 NJ	5.56 NJ	3.27	0.981 NJ	0.981 NJ	0.981 NJ	5.56 NJ	3.27	0.981 NJ	0.981 NJ
surface	Pentachlorodibenzofuran (pg/g)	2	2	100	23.1 NJ	147 NJ	85.1	23.1 NJ	23.1 NJ	23.1 NJ	147 NJ	85.1	23.1 NJ	23.1 NJ
surface	1,2,3,4,7,8-Hexachlorodibenzofuran (pg/g)	2	2	100	3.15 NJ	12.6 NJ	7.88	3.15 NJ	3.15 NJ	3.15 NJ	12.6 NJ	7.88	3.15 NJ	3.15 NJ
surface	1,2,3,6,7,8-Hexachlorodibenzofuran (pg/g)	2	2	100	1.26 NJ	6.1 NJ	3.68	1.26 NJ	1.26 NJ	1.26 NJ	6.1 NJ	3.68	1.26 NJ	1.26 NJ
surface	1,2,3,7,8,9-Hexachlorodibenzofuran (pg/g)	2	1	50	0.335 NJ	0.335 NJ	0.335	0.335 NJ	0.335 NJ	0.08 U	0.335 NJ	0.208	0.08 U	0.08 U
surface	2,3,4,6,7,8-Hexachlorodibenzofuran (pg/g)	2	2	100	0.927 NJ	4.21 NJ	2.57	0.927 NJ	0.927 NJ	0.927 NJ	4.21 NJ	2.57	0.927 NJ	0.927 NJ
surface	Hexachlorodibenzofuran (pg/g)	2	2	100	41.2 NJ	184 NJ	113	41.2 NJ	41.2 NJ	41.2 NJ	184 NJ	113	41.2 NJ	41.2 NJ
surface	1,2,3,4,6,7,8-Heptachlorodibenzofuran (pg/g)	2	2	100	32.8 NJ	122 NJ	77.4	32.8 NJ	32.8 NJ	32.8 NJ	122 NJ	77.4	32.8 NJ	32.8 NJ
surface	1,2,3,4,7,8,9-Heptachlorodibenzofuran (pg/g)	2	2	100	2.7 NJ	6.35 NJ	4.53	2.7 NJ	2.7 NJ	2.7 NJ	6.35 NJ	4.53	2.7 NJ	2.7 NJ
surface	Heptachlorodibenzofuran (pg/g)	2	2	100	144 NJ	347 NJ	246	144 NJ	144 NJ	144 NJ	347 NJ	246	144 NJ	144 NJ
surface	Octachlorodibenzofuran (pg/g)	2	2	100	163 NJ	280 NJ	222	163 NJ	163 NJ	163 NJ	280 NJ	222	163 NJ	163 NJ
surface	Gravel (percent)	4	4	100	0.06	5.3	2.55	0.11	4.74	0.06	5.3	2.55	0.11	4.74
surface	Sand (percent)	2	2	100	27.46	30.93	29.2	27.46	27.46	27.46	30.93	29.2	27.46	27.46
surface	Very coarse sand (percent)	2	2	100	1.97	3.74	2.86	1.97	1.97	1.97	3.74	2.86	1.97	1.97
surface	Coarse sand (percent)	2	2	100	11.2	12.8	12	11.2	11.2	11.2	12.8	12	11.2	11.2

Table 2. Querried Sediment Chemistry Data.

Surface or Subsurface	Analyte	Number of Samples	Number Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
surface	Medium sand (percent)	2	2	100	32.2	39	35.6	32.2	32.2	32.2	39	35.6	32.2	32.2
surface	Fine sand (percent)	2	2	100	8.51	17.2	12.9	8.51	8.51	8.51	17.2	12.9	8.51	8.51
surface	Very fine sand (percent)	2	2	100	8.96	9.2	9.08	8.96	8.96	8.96	9.2	9.08	8.96	8.96
surface	Fines (percent)	2	2	100	69.01	72.43	70.7	69.01	69.01	69.01	72.43	70.7	69.01	69.01
surface	Silt (percent)	2	2	100	58.45	62.72	60.6	58.45	58.45	58.45	62.72	60.6	58.45	58.45
surface	Coarse silt (percent)	2	2	100	5.31	8.22	6.77	5.31	5.31	5.31	8.22	6.77	5.31	5.31
surface	Medium silt (percent)	2	2	100	4.3	5.72	5.01	4.3	4.3	4.3	5.72	5.01	4.3	4.3
surface	Fine silt (percent)	2	2	100	3.42	4.41	3.92	3.42	3.42	3.42	4.41	3.92	3.42	3.42
surface	Very fine silt (percent)	2	2	100	2.29	3.11	2.7	2.29	2.29	2.29	3.11	2.7	2.29	2.29
surface	Clay (percent)	2	2	100	9.71	10.56	10.1	9.71	9.71	9.71	10.56	10.1	9.71	9.71
surface	8-9 Phi clay (percent)	2	2	100	1.49	2	1.75	1.49	1.49	1.49	2	1.75	1.49	1.49
surface	9-10 Phi clay (percent)	2	2	100	1.23	1.33	1.28	1.23	1.23	1.23	1.33	1.28	1.23	1.23
surface	>10 Phi clay (percent)	2	2	100	0.87	1.46	1.17	0.87	0.87	0.87	1.46	1.17	0.87	0.87
surface	Dalapon (ug/kg)	2	0	0						16 U	450 U	233	16 U	16 U
surface	Dicamba (ug/kg)	2	0	0						3.1 U	3.2 U	3.15	3.1 U	3.1 U
surface	MCPA (ug/kg)	2	0	0						3100 U	3200 U	3150	3100 U	3100 U
surface	Dichloroprop (ug/kg)	2	0	0						6.2 U	6.4 UJ	6.3	6.2 U	6.2 U
surface	2,4-D (ug/kg)	2	0	0						6.2 U	6.4 U	6.3	6.2 U	6.2 U
surface	Silvex (ug/kg)	2	0	0						1.6 U	3 U	2.3	1.6 U	1.6 U
surface	2,4,5-T (ug/kg)	2	0	0						1.6 U	4.3 U	2.95	1.6 U	1.6 U
surface	2,4-DB (ug/kg)	2	0	0						31 U	71 U	51	31 U	31 U
surface	Dinoseb (ug/kg)	2	0	0						3.1 U	3.2 U	3.15	3.1 U	3.1 U
surface	MCPP (ug/kg)	2	0	0						3200 U	4300 U	3750	3200 U	3200 U
surface	Aluminum (mg/kg)	4	4	100	18200	40000	29100	20300	37800	18200	40000	29100	20300	37800
surface	Antimony (mg/kg)	3	3	100	1 J	11 J	7	9 J	9 J	1 J	11 J	7	9 J	9 J
surface	Arsenic (mg/kg)	4	3	75	3.32	7.8	5.37	5	5	3.32	7.8	5.28	5	5 U
surface	Cadmium (mg/kg)	4	4	100	0.318	0.9	0.505	0.4	0.4	0.318	0.9	0.505	0.4	0.4
surface	Chromium (mg/kg)	4	4	100	22.8	50	36.6	36.4	37	22.8	50	36.6	36.4	37
surface	Copper (mg/kg)	4	4	100	33.7	78.2	50.3	43.4	45.9	33.7	78.2	50.3	43.4	45.9
surface	Lead (mg/kg)	4	4	100	9	52 J	23.5	10	23	9	52 J	23.5	10	23
surface	Manganese (mg/kg)	2	2	100	663	671	667	663	663	663	671	667	663	663
surface	Mercury (mg/kg)	4	4	100	0.06	0.09 J	0.0688	0.06	0.065	0.06	0.09 J	0.0688	0.06	0.065
surface	Nickel (mg/kg)	4	4	100	21.5	29	26.7	27.9	28.4	21.5	29	26.7	27.9	28.4
surface	Selenium (mg/kg)	4	0	0						0.3 UJ	5 U	2.7	0.5 U	5 U
surface	Silver (mg/kg)	4	4	100	0.07 J	0.5	0.285	0.07	0.5	0.07 J	0.5	0.285	0.07	0.5
surface	Thallium (mg/kg)	2	2	100	9	11	10	9	9	9	11	10	9	9
surface	Zinc (mg/kg)	4	4	100	94.7	370	175	97.8	136	94.7	370	175	97.8	136
surface	Barium (mg/kg)	2	2	100	183	186	185	183	183	183	186	185	183	183
surface	Beryllium (mg/kg)	2	2	100	0.65	0.66	0.655	0.65	0.65	0.65	0.66	0.655	0.65	0.65
surface	Calcium (mg/kg)	2	2	100	8060	8420	8240	8060	8060	8060	8420	8240	8060	8060
surface	Cobalt (mg/kg)	2	2	100	17.9	18	18	17.9	17.9	17.9	18	18	17.9	17.9
surface	Iron (mg/kg)	2	2	100	40200	40800	40500	40200	40200	40200	40800	40500	40200	40200
surface	Magnesium (mg/kg)	2	2	100	6890	7000	6950	6890	6890	6890	7000	6950	6890	6890
surface	Potassium (mg/kg)	2	2	100	1270	1350	1310	1270	1270	1270	1350	1310	1270	1270
surface	Sodium (mg/kg)	2	2	100	1100	1240	1170	1100	1100	1100	1240	1170	1100	1100
surface	Vanadium (mg/kg)	2	2	100	98.5	103	101	98.5	98.5	98.5	103	101	98.5	98.5

Table 2. Querried Sediment Chemistry Data.

Surface or Subsurface	Analyte	Number of Samples	Number Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
surface	2-Methylnaphthalene (ug/kg)	4	0	0						19 U	120 U	44.3	19 U	19 U
surface	Acenaphthene (ug/kg)	4	2	50	25.3	360 J	193	25.3	25.3	19 U	360 J	106	19 U	25.3
surface	Acenaphthylene (ug/kg)	4	0	0						19 U	120 U	44.3	19 U	19 U
surface	Anthracene (ug/kg)	4	2	50	37.2	4200	2120	37.2	37.2	19 U	4200	1070	19 U	37.2
surface	Fluorene (ug/kg)	4	2	50	21.2	830	426	21.2	21.2	19 U	830	222	19 U	21.2
surface	Naphthalene (ug/kg)	4	0	0						19 U	120 U	44.3	19 U	19 U
surface	Phenanthrene (ug/kg)	4	4	100	68	6900	1790	80	113	68	6900	1790	80	113
surface	Low Molecular Weight PAH (ug/kg)	4	4	100	68 A	12300 J	3160	80 A	197	68 A	12300 J	3160	80 A	197
surface	Dibenz(a,h)anthracene (ug/kg)	4	4	100	25	540 M	156	26.3 J	33	25	540 M	156	26.3 J	33
surface	Benz(a)anthracene (ug/kg)	4	4	100	72	6600 J	1710	89	94.7	72	6600 J	1710	89	94.7
surface	Benzo(a)pyrene (ug/kg)	4	4	100	100	5800 J	1540	110 J	130	100	5800 J	1540	110 J	130
surface	Benzo(b)fluoranthene (ug/kg)	4	4	100	84	4100 J	1100	107 J	110	84	4100 J	1100	107 J	110
surface	Benzo(g,h,i)perylene (ug/kg)	4	4	100	62 J	1700	484	80 J	94.7 J	62 J	1700	484	80 J	94.7 J
surface	Benzo(k)fluoranthene (ug/kg)	4	4	100	94.3 J	3300 J	909	100	140	94.3 J	3300 J	909	100	140
surface	Chrysene (ug/kg)	4	4	100	96	6300 J	1660	120	125	96	6300 J	1660	120	125
surface	Fluoranthene (ug/kg)	4	4	100	140	15000	3870	170	185	140	15000	3870	170	185
surface	Indeno(1,2,3-cd)pyrene (ug/kg)	4	4	100	61	1900	529	74 J	82	61	1900	529	74 J	82
surface	Pyrene (ug/kg)	4	4	100	130	11000 J	2870	160	190	130	11000 J	2870	160	190
surface	Benzo(b+k)fluoranthene (ug/kg)	2	2	100	184 A	250 A	217	184 A	184 A	184 A	250 A	217	184 A	184 A
surface	High Molecular Weight PAH (ug/kg)	4	4	100	870 A	56200 J	14800	1100 J	1114 A	870 A	56200 J	14800	1100 J	1114 A
surface	Polycyclic Aromatic Hydrocarbons (ug/kg)	2	2	100	938 A	1194 A	1070	938 A	938 A	938 A	1194 A	1070	938 A	938 A
surface	2-Chlorobiphenyl (pg/g)	2	2	100	155 D	872	514	155 D	155 D	155 D	872	514	155 D	155 D
surface	3-Chlorobiphenyl (pg/g)	2	2	100	38.6 D	94.3	66.5	38.6 D	38.6 D	38.6 D	94.3	66.5	38.6 D	38.6 D
surface	4-Chlorobiphenyl (pg/g)	2	2	100	92 D	507	300	92 D	92 D	92 D	507	300	92 D	92 D
surface	2,2'-Dichlorobiphenyl (pg/g)	2	2	100	784 D	9070 D	4930	784 D	784 D	784 D	9070 D	4930	784 D	784 D
surface	2,3-Dichlorobiphenyl (pg/g)	2	2	100	33 D	520	277	33 D	33 D	33 D	520	277	33 D	33 D
surface	2,3'-Dichlorobiphenyl (pg/g)	2	2	100	410 D	5100 D	2760	410 D	410 D	410 D	5100 D	2760	410 D	410 D
surface	2,4-Dichlorobiphenyl (pg/g)	2	2	100	75.6 D	1040	558	75.6 D	75.6 D	75.6 D	1040	558	75.6 D	75.6 D
surface	2,4'-Dichlorobiphenyl (pg/g)	2	2	100	1780 D	22500 D	12100	1780 D	1780 D	1780 D	22500 D	12100	1780 D	1780 D
surface	2,5-Dichlorobiphenyl (pg/g)	2	2	100	123 D	1830	977	123 D	123 D	123 D	1830	977	123 D	123 D
surface	2,6-Dichlorobiphenyl (pg/g)	2	2	100	39.7 D	474	257	39.7 D	39.7 D	39.7 D	474	257	39.7 D	39.7 D
surface	3,3'-Dichlorobiphenyl (pg/g)	2	2	100	152	235 D	194	152	152	152	235 D	194	152	152
surface	3,4-Dichlorobiphenyl (pg/g)	2	2	100	224 CJ	1230 CJ	727	224 CJ	224 CJ	224 CJ	1230 CJ	727	224 CJ	224 CJ
surface	3,4'-Dichlorobiphenyl (pg/g)	2	0	0						C12	C12	C12	C12	C12
surface	3,5-Dichlorobiphenyl (pg/g)	2	0	0						0.409 U	3.95 UD	2.18	0.409 U	0.409 U
surface	4,4'-Dichlorobiphenyl (pg/g)	2	2	100	1480 D	10200 D	5840	1480 D	1480 D	1480 D	10200 D	5840	1480 D	1480 D
surface	2,2',3-Trichlorobiphenyl (pg/g)	2	2	100	1760 D	17100 D	9430	1760 D	1760 D	1760 D	17100 D	9430	1760 D	1760 D
surface	2,2',4-Trichlorobiphenyl (pg/g)	2	2	100	2160 D	17500 D	9830	2160 D	2160 D	2160 D	17500 D	9830	2160 D	2160 D
surface	2,2',5-Trichlorobiphenyl (pg/g)	2	2	100	4060 CJ	35500 CJ	19800	4060 CJ	4060 CJ	4060 CJ	35500 CJ	19800	4060 CJ	4060 CJ
surface	2,2',6-Trichlorobiphenyl (pg/g)	2	2	100	660 D	4660 D	2660	660 D	660 D	660 D	4660 D	2660	660 D	660 D
surface	2,3,3'-Trichlorobiphenyl (pg/g)	2	2	100	8790 CJ	38200 CJ	23500	8790 CJ	8790 CJ	8790 CJ	38200 CJ	23500	8790 CJ	8790 CJ
surface	2,3,4-Trichlorobiphenyl (pg/g)	2	2	100	3870 CJ	24900 CJ	14400	3870 CJ	3870 CJ	3870 CJ	24900 CJ	14400	3870 CJ	3870 CJ
surface	2,3,4'-Trichlorobiphenyl (pg/g)	1	1	100	2620 D	2620 D	2620	2620 D	2620 D	2620 D	2620 D	2620	2620 D	2620 D
surface	2,3,4'-Trichlorobiphenyl (pg/g)	1	1	100	2620 D	2620 D	2620	2620 D	2620 D	16500 D	16500 D	16500	16500 D	16500 D
surface	2,3,5-Trichlorobiphenyl (pg/g)	2	2	100	6.73 D	74.4	40.6	6.73 D	6.73 D	6.73 D	74.4	40.6	6.73 D	6.73 D
surface	2,3,6-Trichlorobiphenyl (pg/g)	2	2	100	80.9 D	599	340	80.9 D	80.9 D	80.9 D	599	340	80.9 D	80.9 D

Table 2. Querried Sediment Chemistry Data.

Surface or Subsurface	Analyte	Number of Samples	Number Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
surface	2,3',4-Trichlorobiphenyl (pg/g)	2	2	100	1000 D	3490 D	2250	1000 D	1000 D	1000 D	3490 D	2250	1000 D	1000 D
surface	2,3',5-Trichlorobiphenyl (pg/g)	2	2	100	1760 CJ	8320 CJ	5040	1760 CJ	1760 CJ	1760 CJ	8320 CJ	5040	1760 CJ	1760 CJ
surface	2,3',6-Trichlorobiphenyl (pg/g)	2	2	100	418 D	2880	1650	418 D	418 D	418 D	2880	1650	418 D	418 D
surface	2,4,4'-Trichlorobiphenyl (pg/g)	2	0	0						C20	C20	C20	C20	C20
surface	2,4,5-Trichlorobiphenyl (pg/g)	2	0	0						C26	C26	C26	C26	C26
surface	2,4,6-Trichlorobiphenyl (pg/g)	2	0	0						C18	C18	C18	C18	C18
surface	2,4',5-Trichlorobiphenyl (pg/g)	2	2	100	7370 D	35400 J	21400	7370 D	7370 D	7370 D	35400 J	21400	7370 D	7370 D
surface	2,4',6-Trichlorobiphenyl (pg/g)	2	2	100	1840 D	10500 D	6170	1840 D	1840 D	1840 D	10500 D	6170	1840 D	1840 D
surface	2,3',4'-Trichlorobiphenyl (pg/g)	2	0	0						C21	C21	C21	C21	C21
surface	2,3',5'-Trichlorobiphenyl (pg/g)	2	2	100	27.6 D	183	105	27.6 D	27.6 D	27.6 D	183	105	27.6 D	27.6 D
surface	3,3',4-Trichlorobiphenyl (pg/g)	2	2	100	164 D	417	291	164 D	164 D	164 D	417	291	164 D	164 D
surface	3,3',5-Trichlorobiphenyl (pg/g)	2	0	0						0.765 U	4.64 UD	2.7	0.765 U	0.765 U
surface	3,4,4'-Trichlorobiphenyl (pg/g)	2	2	100	2300 D	9330 D	5820	2300 D	2300 D	2300 D	9330 D	5820	2300 D	2300 D
surface	3,4,5-Trichlorobiphenyl (pg/g)	2	2	100	8.22 KD	13.3 K	10.8	8.22 KD	8.22 KD	8.22 KD	13.3 K	10.8	8.22 KD	8.22 KD
surface	3,4',5-Trichlorobiphenyl (pg/g)	2	2	100	82.6 D	163	123	82.6 D	82.6 D	82.6 D	163	123	82.6 D	82.6 D
surface	2,2',3,3'-Tetrachlorobiphenyl (pg/g)	2	2	100	11100 CJ	19100 CJ	15100	11100 CJ	11100 CJ	11100 CJ	19100 CJ	15100	11100 CJ	11100 CJ
surface	2,2',3,4-Tetrachlorobiphenyl (pg/g)	2	0	0						C40	C40	C40	C40	C40
surface	2,2',3,4'-Tetrachlorobiphenyl (pg/g)	2	2	100	6350 D	8970 D	7660	6350 D	6350 D	6350 D	8970 D	7660	6350 D	6350 D
surface	2,2',3,5-Tetrachlorobiphenyl (pg/g)	2	2	100	975 D	1720	1350	975 D	975 D	975 D	1720	1350	975 D	975 D
surface	2,2',3,5'-Tetrachlorobiphenyl (pg/g)	2	2	100	30800 CJ	45900 CJ	38400	30800 CJ	30800 CJ	30800 CJ	45900 CJ	38400	30800 CJ	30800 CJ
surface	2,2',3,6-Tetrachlorobiphenyl (pg/g)	2	2	100	3010 CJ	7970 CJ	5490	3010 CJ	3010 CJ	3010 CJ	7970 CJ	5490	3010 CJ	3010 CJ
surface	2,2',3,6'-Tetrachlorobiphenyl (pg/g)	2	2	100	1280 D	2850	2070	1280 D	1280 D	1280 D	2850	2070	1280 D	1280 D
surface	2,2',4,4'-Tetrachlorobiphenyl (pg/g)	2	0	0						C44	C44	C44	C44	C44
surface	2,2',4,5-Tetrachlorobiphenyl (pg/g)	2	2	100	2690 D	8570 D	5630	2690 D	2690 D	2690 D	8570 D	5630	2690 D	2690 D
surface	2,2',4,5'-Tetrachlorobiphenyl (pg/g)	2	2	100	19000 CJ	28700 CJ	23900	19000 CJ	19000 CJ	19000 CJ	28700 CJ	23900	19000 CJ	19000 CJ
surface	2,2',4,6-Tetrachlorobiphenyl (pg/g)	2	2	100	4520 CJ	5430 CJ	4980	4520 CJ	4520 CJ	4520 CJ	5430 CJ	4980	4520 CJ	4520 CJ
surface	2,2',4,6'-Tetrachlorobiphenyl (pg/g)	2	0	0						C45	C45	C45	C45	C45
surface	2,2',5,5'-Tetrachlorobiphenyl (pg/g)	2	2	100	31700 D	112000 J	71900	31700 D	31700 D	31700 D	112000 J	71900	31700 D	31700 D
surface	2,2',5,6'-Tetrachlorobiphenyl (pg/g)	2	0	0						C50	C50	C50	C50	C50
surface	2,2',6,6'-Tetrachlorobiphenyl (pg/g)	2	2	100	54.2 D	104	79.1	54.2 D	54.2 D	54.2 D	104	79.1	54.2 D	54.2 D
surface	2,3,3',4-Tetrachlorobiphenyl (pg/g)	2	1	50	467	467	467	467	467	15.6 UD	467	241	15.6 UD	15.6 UD
surface	2,3,3',4'-Tetrachlorobiphenyl (pg/g)	2	2	100	7330 D	7570 D	7450	7330 D	7330 D	7330 D	7570 D	7450	7330 D	7330 D
surface	2,3,3',5-Tetrachlorobiphenyl (pg/g)	2	2	100	134	266 D	200	134	134	134	266 D	200	134	134
surface	2,3,3',5'-Tetrachlorobiphenyl (pg/g)	2	2	100	35.6	297 D	166	35.6	35.6	35.6	297 D	166	35.6	35.6
surface	2,3,3',6-Tetrachlorobiphenyl (pg/g)	2	2	100	1560 CJ	3260 CJ	2410	1560 CJ	1560 CJ	1560 CJ	3260 CJ	2410	1560 CJ	1560 CJ
surface	2,3,4,4'-Tetrachlorobiphenyl (pg/g)	2	2	100	3010 D	4230 D	3620	3010 D	3010 D	3010 D	4230 D	3620	3010 D	3010 D
surface	2,3,4,5-Tetrachlorobiphenyl (pg/g)	2	2	100	28300 CJ	76900 CJ	52600	28300 CJ	28300 CJ	28300 CJ	76900 CJ	52600	28300 CJ	28300 CJ
surface	2,3,4,6-Tetrachlorobiphenyl (pg/g)	2	0	0						C59	C59	C59	C59	C59
surface	2,3,4',5-Tetrachlorobiphenyl (pg/g)	2	2	100	918 D	933	926	918 D	918 D	918 D	933	926	918 D	918 D
surface	2,3,4',6-Tetrachlorobiphenyl (pg/g)	2	2	100	13600 D	13700 D	13700	13600 D	13600 D	13600 D	13700 D	13700	13600 D	13600 D
surface	2,3,5,6-Tetrachlorobiphenyl (pg/g)	2	0	0						C44	C44	C44	C44	C44
surface	2,3',4,4'-Tetrachlorobiphenyl (pg/g)	2	2	100	16000 D	22900 D	19500	16000 D	16000 D	16000 D	22900 D	19500	16000 D	16000 D
surface	2,3',4,5-Tetrachlorobiphenyl (pg/g)	2	2	100	632 D	897	765	632 D	632 D	632 D	897	765	632 D	632 D
surface	2,3',4,5'-Tetrachlorobiphenyl (pg/g)	2	2	100	54.3	280 D	167	54.3	54.3	54.3	280 D	167	54.3	54.3
surface	2,3',4,6-Tetrachlorobiphenyl (pg/g)	2	0	0						C49	C49	C49	C49	C49
surface	2,3',4',5-Tetrachlorobiphenyl (pg/g)	2	0	0						C61	C61	C61	C61	C61

Table 2. Querried Sediment Chemistry Data.

Surface or Subsurface	Analyte	Number of Samples	Number Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
surface	2,3',4',6-Tetrachlorobiphenyl (pg/g)	2	0	0						C40	C40	C40	C40	C40
surface	2,3',5,5'-Tetrachlorobiphenyl (pg/g)	2	2	100	122	430 D	276	122	122	122	430 D	276	122	122
surface	2,3',5',6-Tetrachlorobiphenyl (pg/g)	2	0	0						0.93 U	14.7 UD	7.82	0.93 U	0.93 U
surface	2,4,4',5-Tetrachlorobiphenyl (pg/g)	2	0	0						C61	C61	C61	C61	C61
surface	2,4,4',6-Tetrachlorobiphenyl (pg/g)	2	0	0						C59	C59	C59	C59	C59
surface	2,3',4',5'-Tetrachlorobiphenyl (pg/g)	2	0	0						C61	C61	C61	C61	C61
surface	3,3',4,4'-Tetrachlorobiphenyl (pg/g)	2	2	100	1040 D	1330	1190	1040 D	1040 D	1040 D	1330	1190	1040 D	1040 D
surface	3,3',4,5-Tetrachlorobiphenyl (pg/g)	2	0	0						0.789 U	16.4 UD	8.59	0.789 U	0.789 U
surface	3,3',4,5'-Tetrachlorobiphenyl (pg/g)	2	2	100	80.4	3260 D	1670	80.4	80.4	80.4	3260 D	1670	80.4	80.4
surface	3,3',5,5'-Tetrachlorobiphenyl (pg/g)	2	0	0						0.878 U	14.6 UD	7.74	0.878 U	0.878 U
surface	3,4,4',5-Tetrachlorobiphenyl (pg/g)	2	2	100	46.2	63.9	55.1	46.2	46.2	46.2	63.9	55.1	46.2	46.2
surface	2,2',3,3',4-Pentachlorobiphenyl (pg/g)	2	2	100	1950	21800 D	11900	1950	1950	1950	21800 D	11900	1950	1950
surface	2,2',3,3',5-Pentachlorobiphenyl (pg/g)	2	2	100	7510 CJ	130000 CJ	68800	7510 CJ	7510 CJ	7510 CJ	130000 CJ	68800	7510 CJ	7510 CJ
surface	2,2',3,3',6-Pentachlorobiphenyl (pg/g)	2	2	100	4380 D	68600 D	36500	4380 D	4380 D	4380 D	68600 D	36500	4380 D	4380 D
surface	2,2',3,4,4'-Pentachlorobiphenyl (pg/g)	2	2	100	2690 CJ	29200 CJ	15900	2690 CJ	2690 CJ	2690 CJ	29200 CJ	15900	2690 CJ	2690 CJ
surface	2,2',3,4,5-Pentachlorobiphenyl (pg/g)	2	2	100	10000 CJ	159000 CJ	84500	10000 CJ	10000 CJ	10000 CJ	159000 CJ	84500	10000 CJ	10000 CJ
surface	2,2',3,4,5'-Pentachlorobiphenyl (pg/g)	2	0	0						C86	C86	C86	C86	C86
surface	2,2',3,4,6-Pentachlorobiphenyl (pg/g)	2	2	100	2570 CJ	32100 CJ	17300	2570 CJ	2570 CJ	2570 CJ	32100 CJ	17300	2570 CJ	2570 CJ
surface	2,2',3,4,6'-Pentachlorobiphenyl (pg/g)	2	2	100	273	1500 D	887	273	273	273	1500 D	887	273	273
surface	2,2',3,4',5-Pentachlorobiphenyl (pg/g)	1	2	200	13200 CJ	258000 CJ	136000	13200 CJ	13200 CJ	258000 CJ	258000 CJ	258000	258000 CJ	258000 CJ
surface	2,2',3,4',5-Pentachlorobiphenyl (pg/g)	1	2	200	13200 CJ	258000 CJ	136000	13200 CJ	13200 CJ	13200 CJ	13200 CJ	13200	13200 CJ	13200 CJ
surface	2,2',3,4',6-Pentachlorobiphenyl (pg/g)	2	0	0						C88	C88	C88	C88	C88
surface	2,2',3,5,5'-Pentachlorobiphenyl (pg/g)	2	2	100	2450	43900 D	23200	2450	2450	2450	43900 D	23200	2450	2450
surface	2,2',3,5,6-Pentachlorobiphenyl (pg/g)	2	2	100	13600 CJ	235000 CJ	124000	13600 CJ	13600 CJ	13600 CJ	235000 CJ	124000	13600 CJ	13600 CJ
surface	2,2',3,5,6'-Pentachlorobiphenyl (pg/g)	1	2	200	127	797 D	462	127	127	797 D	797 D	797	797 D	797 D
surface	2,2',3,5,6'-Pentachlorobiphenyl (pg/g)	1	2	200	127	797 D	462	127	127	127	127	127	127	127
surface	2,2',3,5',6-Pentachlorobiphenyl (pg/g)	2	0	0						C93	C93	C93	C93	C93
surface	2,2',3,6,6'-Pentachlorobiphenyl (pg/g)	2	2	100	263	1170 D	717	263	263	263	1170 D	717	263	263
surface	2,2',3,4',5'-Pentachlorobiphenyl (pg/g)	2	0	0						C86	C86	C86	C86	C86
surface	2,2',3,4',6'-Pentachlorobiphenyl (pg/g)	2	0	0						C93	C93	C93	C93	C93
surface	2,2',4,4',5-Pentachlorobiphenyl (pg/g)	2	0	0						C83	C83	C83	C83	C83
surface	2,2',4,4',6-Pentachlorobiphenyl (pg/g)	2	0	0						C93	C93	C93	C93	C93
surface	2,2',4,5,5'-Pentachlorobiphenyl (pg/g)	2	0	0						C90	C90	C90	C90	C90
surface	2,2',4,5,6'-Pentachlorobiphenyl (pg/g)	2	0	0						C93	C93	C93	C93	C93
surface	2,2',4,5',6-Pentachlorobiphenyl (pg/g)	2	2	100	115	1260 D	688	115	115	115	1260 D	688	115	115
surface	2,2',4,6,6'-Pentachlorobiphenyl (pg/g)	2	2	100	3.43	8.4 D	5.92	3.43	3.43	3.43	8.4 D	5.92	3.43	3.43
surface	2,3,3',4,4'-Pentachlorobiphenyl (pg/g)	2	2	100	5710 D	54500 D	30100	5710 D	5710 D	5710 D	54500 D	30100	5710 D	5710 D
surface	2,3,3',4,5-Pentachlorobiphenyl (pg/g)	2	0	0						0.66 U	15.7 UD	8.18	0.66 U	0.66 U
surface	2,3,3',4',5-Pentachlorobiphenyl (pg/g)	2	2	100	503 CJ	7110 CJ	3810	503 CJ	503 CJ	503 CJ	7110 CJ	3810	503 CJ	503 CJ
surface	2,3,3',4,5'-Pentachlorobiphenyl (pg/g)	2	0	0						C86	C86	C86	C86	C86
surface	2,3,3',4,6-Pentachlorobiphenyl (pg/g)	2	2	100	760	8920 D	4840	760	760	760	8920 D	4840	760	760
surface	2,3,3',4',6-Pentachlorobiphenyl (pg/g)	2	2	100	15900 CJ	302000 CJ	159000	15900 CJ	15900 CJ	15900 CJ	302000 CJ	159000	15900 CJ	15900 CJ
surface	2,3,3',5,5'-Pentachlorobiphenyl (pg/g)	2	1	50	15.6 D	15.6 D	15.6	15.6 D	15.6 D	0.584 U	15.6 D	8.09	0.584 U	0.584 U
surface	2,3,3',5,6-Pentachlorobiphenyl (pg/g)	2	0	0						0.558 U	11.1 UD	5.83	0.558 U	0.558 U
surface	2,3,3',5',6-Pentachlorobiphenyl (pg/g)	2	0	0						C90	C90	C90	C90	C90
surface	2,3,4,4',5-Pentachlorobiphenyl (pg/g)	2	2	100	350	3000 D	1680	350	350	350	3000 D	1680	350	350

Table 2. Querried Sediment Chemistry Data.

Surface or Subsurface	Analyte	Number of Samples	Number Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
surface	2,3,4,4',6-Pentachlorobiphenyl (pg/g)	2	0	0						C110	C110	C110	C110	C110
surface	2,3,4,5,6-Pentachlorobiphenyl (pg/g)	2	0	0						C85	C85	C85	C85	C85
surface	2,3,4',5,6-Pentachlorobiphenyl (pg/g)	2	0	0						C85	C85	C85	C85	C85
surface	2,3',4,4',5-Pentachlorobiphenyl (pg/g)	2	2	100	11500 D	170000 J	90800	11500 D	11500 D	11500 D	170000 J	90800	11500 D	11500 D
surface	2,3',4,4',6-Pentachlorobiphenyl (pg/g)	2	0	0						C86	C86	C86	C86	C86
surface	2,3',4,5,5'-Pentachlorobiphenyl (pg/g)	2	2	100	6.82	185 D	95.9	6.82	6.82	6.82	185 D	95.9	6.82	6.82
surface	2,3',4,5',6-Pentachlorobiphenyl (pg/g)	2	1	50	0.759	0.759	0.759	0.759	0.759	0.759	11.5 UD	6.13	0.759	0.759
surface	2,3,3',4',5'-Pentachlorobiphenyl (pg/g)	2	2	100	194	2100 D	1150	194	194	194	2100 D	1150	194	194
surface	2,3',4,4',5'-Pentachlorobiphenyl (pg/g)	2	2	100	246	2900 D	1570	246	246	246	2900 D	1570	246	246
surface	2,3',4',5,5'-Pentachlorobiphenyl (pg/g)	2	0	0						C107	C107	C107	C107	C107
surface	2,3',4',5',6-Pentachlorobiphenyl (pg/g)	2	0	0						C86	C86	C86	C86	C86
surface	3,3',4,4',5-Pentachlorobiphenyl (pg/g)	2	2	100	25.8	225	125	25.8	25.8	25.8	225	125	25.8	25.8
surface	3,3',4,5,5'-Pentachlorobiphenyl (pg/g)	2	2	100	19.7	632 D	326	19.7	19.7	19.7	632 D	326	19.7	19.7
surface	2,2',3,3',4,4'-Hexachlorobiphenyl (pg/g)	2	2	100	2510 CJ	42000 CJ	22300	2510 CJ	2510 CJ	2510 CJ	42000 CJ	22300	2510 CJ	2510 CJ
surface	2,2',3,3',4,5-Hexachlorobiphenyl (pg/g)	2	2	100	15900 CJ	342000 CJ	179000	15900 CJ	15900 CJ	15900 CJ	342000 CJ	179000	15900 CJ	15900 CJ
surface	2,2',3,3',4,5'-Hexachlorobiphenyl (pg/g)	2	2	100	964	15700 D	8330	964	964	964	15700 D	8330	964	964
surface	2,2',3,3',4,6-Hexachlorobiphenyl (pg/g)	2	2	100	222	4280 D	2250	222	222	222	4280 D	2250	222	222
surface	2,2',3,3',4,6'-Hexachlorobiphenyl (pg/g)	2	2	100	4930	85600 D	45300	4930	4930	4930	85600 D	45300	4930	4930
surface	2,2',3,3',5,5'-Hexachlorobiphenyl (pg/g)	2	2	100	168	2570 D	1370	168	168	168	2570 D	1370	168	168
surface	2,2',3,3',5,6-Hexachlorobiphenyl (pg/g)	2	2	100	858 CJ	13800 CJ	7330	858 CJ	858 CJ	858 CJ	13800 CJ	7330	858 CJ	858 CJ
surface	2,2',3,3',5,6'-Hexachlorobiphenyl (pg/g)	2	2	100	4650 CJ	60100 CJ	32400	4650 CJ	4650 CJ	4650 CJ	60100 CJ	32400	4650 CJ	4650 CJ
surface	2,2',3,3',6,6'-Hexachlorobiphenyl (pg/g)	2	2	100	1880	28600 D	15200	1880	1880	1880	28600 D	15200	1880	1880
surface	2,2',3,4,4',5-Hexachlorobiphenyl (pg/g)	2	2	100	752	16200 D	8480	752	752	752	16200 D	8480	752	752
surface	2,2',3,4,4',5'-Hexachlorobiphenyl (pg/g)	2	0	0						C129	C129	C129	C129	C129
surface	2,2',3,4,4',6-Hexachlorobiphenyl (pg/g)	2	2	100	252 CJ	5040 CJ	2650	252 CJ	252 CJ	252 CJ	5040 CJ	2650	252 CJ	252 CJ
surface	2,2',3,4,4',6'-Hexachlorobiphenyl (pg/g)	2	0	0						C139	C139	C139	C139	C139
surface	2,2',3,4,5,5'-Hexachlorobiphenyl (pg/g)	2	2	100	2670	37200 D	19900	2670	2670	2670	37200 D	19900	2670	2670
surface	2,2',3,4,5,6-Hexachlorobiphenyl (pg/g)	2	0	0						0.75 U	8.5 UD	4.63	0.75 U	0.75 U
surface	2,2',3,4,5,6'-Hexachlorobiphenyl (pg/g)	2	0	0						C134	C134	C134	C134	C134
surface	2,2',3,4,5',6-Hexachlorobiphenyl (pg/g)	2	2	100	696 D	9720 D	5210	696 D	696 D	696 D	9720 D	5210	696 D	696 D
surface	2,2',3,4,6,6'-Hexachlorobiphenyl (pg/g)	2	2	100	6.54	127 D	66.8	6.54	6.54	6.54	127 D	66.8	6.54	6.54
surface	2,2',3,4',5,5'-Hexachlorobiphenyl (pg/g)	2	2	100	1770	25100 D	13400	1770	1770	1770	25100 D	13400	1770	1770
surface	2,2',3,4',5,6-Hexachlorobiphenyl (pg/g)	2	2	100	12000 CJ	212000 CJ	112000	12000 CJ	12000 CJ	12000 CJ	212000 CJ	112000	12000 CJ	12000 CJ
surface	2,2',3,4',5,6'-Hexachlorobiphenyl (pg/g)	1	2	200	11.3	142 D	76.7	11.3	11.3	142 D	142 D	142	142 D	142 D
surface	2,2',3,4',5,6'-Hexachlorobiphenyl (pg/g)	1	2	200	11.3	142 D	76.7	11.3	11.3	11.3	11.3	11.3	11.3	11.3
surface	2,2',3,4',5',6-Hexachlorobiphenyl (pg/g)	2	0	0						C147	C147	C147	C147	C147
surface	2,2',3,4',6,6'-Hexachlorobiphenyl (pg/g)	2	2	100	14.4	246 D	130	14.4	14.4	14.4	246 D	130	14.4	14.4
surface	2,2',3,5,5',6-Hexachlorobiphenyl (pg/g)	2	0	0						C135	C135	C135	C135	C135
surface	2,2',3,5,6,6'-Hexachlorobiphenyl (pg/g)	2	2	100	13	279 D	146	13	13	13	279 D	146	13	13
surface	2,2',4,4',5,5'-Hexachlorobiphenyl (pg/g)	2	2	100	10600 CJ	208000 CJ	109000	10600 CJ	10600 CJ	10600 CJ	208000 CJ	109000	10600 CJ	10600 CJ
surface	2,2',4,4',5,6'-Hexachlorobiphenyl (pg/g)	2	0	0						C135	C135	C135	C135	C135
surface	2,2',4,4',6,6'-Hexachlorobiphenyl (pg/g)	2	1	50	0.341	0.341	0.341	0.341	0.341	0.341	2.76 UD	1.55	0.341	0.341
surface	2,3,3',4,4',5-Hexachlorobiphenyl (pg/g)	2	2	100	1580	16300	8940	1580	1580	1580	16300	8940	1580	1580
surface	2,3,3',4,4',5'-Hexachlorobiphenyl (pg/g)	2	2	100	401	6800	3600	401	401	401	6800	3600	401	401
surface	2,3,3',4,4',6-Hexachlorobiphenyl (pg/g)	2	2	100	1660	25600 D	13600	1660	1660	1660	25600 D	13600	1660	1660
surface	2,3,3',4,5,5'-Hexachlorobiphenyl (pg/g)	2	1	50	1010 D	1010 D	1010	1010 D	1010 D	0.591 U	1010 D	505	0.591 U	0.591 U

Table 2. Querried Sediment Chemistry Data.

Surface or Subsurface	Analyte	Number of Samples	Number Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
surface	2,3,3',4,5,6-Hexachlorobiphenyl (pg/g)	2	0	0						C129	C129	C129	C129	C129
surface	2,3,3',4,5',6-Hexachlorobiphenyl (pg/g)	2	0	0						0.647 U	10.2 UD	5.42	0.647 U	0.647 U
surface	2,3,3',4',5,5'-Hexachlorobiphenyl (pg/g)	2	2	100	37.9	789 D	413	37.9	37.9	37.9	789 D	413	37.9	37.9
surface	2,3,3',4',5,6-Hexachlorobiphenyl (pg/g)	2	0	0						C129	C129	C129	C129	C129
surface	2,3,3',4',5',6-Hexachlorobiphenyl (pg/g)	2	2	100	1130	14700 D	7920	1130	1130	1130	14700 D	7920	1130	1130
surface	2,3,3',5,5',6-Hexachlorobiphenyl (pg/g)	2	2	100	2.13	27.2 D	14.7	2.13	2.13	2.13	27.2 D	14.7	2.13	2.13
surface	2,3,4,4',5,6-Hexachlorobiphenyl (pg/g)	2	0	0						C128	C128	C128	C128	C128
surface	2,3',4,4',5,5'-Hexachlorobiphenyl (pg/g)	2	2	100	614	9110 D	4860	614	614	614	9110 D	4860	614	614
surface	2,3',4,4',5',6-Hexachlorobiphenyl (pg/g)	2	0	0						C153	C153	C153	C153	C153
surface	3,3',4,4',5,5'-Hexachlorobiphenyl (pg/g)	2	2	100	1.18	10.5	5.84	1.18	1.18	1.18	10.5	5.84	1.18	1.18
surface	2,2',3,3',4,4',5-Heptachlorobiphenyl (pg/g)	2	2	100	4440	28200 D	16300	4440	4440	4440	28200 D	16300	4440	4440
surface	2,2',3,3',4,4',6-Heptachlorobiphenyl (pg/g)	2	2	100	1340 CJ	9230 CJ	5290	1340 CJ	1340 CJ	1340 CJ	9230 CJ	5290	1340 CJ	1340 CJ
surface	2,2',3,3',4,5,5'-Heptachlorobiphenyl (pg/g)	2	2	100	737	4430 D	2580	737	737	737	4430 D	2580	737	737
surface	2,2',3,3',4,5,6-Heptachlorobiphenyl (pg/g)	2	0	0						C171	C171	C171	C171	C171
surface	2,2',3,3',4,5,6'-Heptachlorobiphenyl (pg/g)	2	2	100	4560	25000 D	14800	4560	4560	4560	25000 D	14800	4560	4560
surface	2,2',3,3',4,5',6-Heptachlorobiphenyl (pg/g)	2	2	100	184	1080 D	632	184	184	184	1080 D	632	184	184
surface	2,2',3,3',4,6,6'-Heptachlorobiphenyl (pg/g)	2	2	100	532	3110 D	1820	532	532	532	3110 D	1820	532	532
surface	2,2',3,3',4,5',6'-Heptachlorobiphenyl (pg/g)	2	2	100	2490	14200 D	8350	2490	2490	2490	14200 D	8350	2490	2490
surface	2,2',3,3',5,5',6-Heptachlorobiphenyl (pg/g)	2	2	100	835	4170 D	2500	835	835	835	4170 D	2500	835	835
surface	2,2',3,3',5,6,6'-Heptachlorobiphenyl (pg/g)	2	2	100	1660	8720 D	5190	1660	1660	1660	8720 D	5190	1660	1660
surface	2,2',3,4,4',5,5'-Heptachlorobiphenyl (pg/g)	2	2	100	8080 CJ	50300 CJ	29200	8080 CJ	8080 CJ	8080 CJ	50300 CJ	29200	8080 CJ	8080 CJ
surface	2,2',3,4,4',5,6-Heptachlorobiphenyl (pg/g)	2	2	100	40.8	550 D	295	40.8	40.8	40.8	550 D	295	40.8	40.8
surface	2,2',3,4,4',5,6'-Heptachlorobiphenyl (pg/g)	2	2	100	15.9	187 D	101	15.9	15.9	15.9	187 D	101	15.9	15.9
surface	2,2',3,4,4',5',6-Heptachlorobiphenyl (pg/g)	2	2	100	3070 CJ	16200 CJ	9640	3070 CJ	3070 CJ	3070 CJ	16200 CJ	9640	3070 CJ	3070 CJ
surface	2,2',3,4,4',6,6'-Heptachlorobiphenyl (pg/g)	2	2	100	1.57	20.1 D	10.8	1.57	1.57	1.57	20.1 D	10.8	1.57	1.57
surface	2,2',3,4,5,5',6-Heptachlorobiphenyl (pg/g)	2	0	0						C183	C183	C183	C183	C183
surface	2,2',3,4,5,6,6'-Heptachlorobiphenyl (pg/g)	2	1	50	12.8 D	12.8 D	12.8	12.8 D	12.8 D	0.444 U	12.8 D	6.62	0.444 U	0.444 U
surface	2,2',3,4',5,5',6-Heptachlorobiphenyl (pg/g)	2	2	100	4380 D	22900 D	13600	4380 D	4380 D	4380 D	22900 D	13600	4380 D	4380 D
surface	2,2',3,4',5,6,6'-Heptachlorobiphenyl (pg/g)	2	2	100	2.74	29.1 D	15.9	2.74	2.74	2.74	29.1 D	15.9	2.74	2.74
surface	2,3,3',4,4',5,5'-Heptachlorobiphenyl (pg/g)	2	2	100	147	959 D	553	147	147	147	959 D	553	147	147
surface	2,3,3',4,4',5,6-Heptachlorobiphenyl (pg/g)	2	2	100	916	5240 D	3080	916	916	916	5240 D	3080	916	916
surface	2,3,3',4,4',5',6-Heptachlorobiphenyl (pg/g)	2	2	100	191	1160 D	676	191	191	191	1160 D	676	191	191
surface	2,3,3',4,5,5',6-Heptachlorobiphenyl (pg/g)	2	0	0						0.416 U	6.56 UD	3.49	0.416 U	0.416 U
surface	2,3,3',4',5,5',6-Heptachlorobiphenyl (pg/g)	2	0	0						C180	C180	C180	C180	C180
surface	2,2',3,3',4,4',5,5'-Octachlorobiphenyl (pg/g)	2	2	100	1820	5940 D	3880	1820	1820	1820	5940 D	3880	1820	1820
surface	2,2',3,3',4,4',5,6-Octachlorobiphenyl (pg/g)	2	2	100	775 D	2440 D	1610	775 D	775 D	775 D	2440 D	1610	775 D	775 D
surface	2,2',3,3',4,4',5,6'-Octachlorobiphenyl (pg/g)	2	2	100	1320	3370 D	2350	1320	1320	1320	3370 D	2350	1320	1320
surface	2,2',3,3',4,4',6,6'-Octachlorobiphenyl (pg/g)	2	2	100	417 CJ	1100 CJ	759	417 CJ	417 CJ	417 CJ	1100 CJ	759	417 CJ	417 CJ
surface	2,2',3,3',4,5,5',6-Octachlorobiphenyl (pg/g)	2	2	100	3020 CJ	7190 CJ	5110	3020 CJ	3020 CJ	3020 CJ	7190 CJ	5110	3020 CJ	3020 CJ
surface	2,2',3,3',4,5,5',6'-Octachlorobiphenyl (pg/g)	2	0	0						C198	C198	C198	C198	C198
surface	2,2',3,3',4,5,6,6'-Octachlorobiphenyl (pg/g)	2	0	0						C197	C197	C197	C197	C197
surface	2,2',3,3',4,5',6,6'-Octachlorobiphenyl (pg/g)	2	2	100	342	862 D	602	342	342	342	862 D	602	342	342
surface	2,2',3,3',5,5',6,6'-Octachlorobiphenyl (pg/g)	2	2	100	448	1420 D	934	448	448	448	1420 D	934	448	448
surface	2,2',3,4,4',5,5',6-Octachlorobiphenyl (pg/g)	2	2	100	1850	4570 D	3210	1850	1850	1850	4570 D	3210	1850	1850
surface	2,2',3,4,4',5,6,6'-Octachlorobiphenyl (pg/g)	2	1	50	0.689	0.689	0.689	0.689	0.689	0.689	6.36 UD	3.52	0.689	0.689
surface	2,3,3',4,4',5,5',6-Octachlorobiphenyl (pg/g)	2	2	100	99.3	306 D	203	99.3	99.3	99.3	306 D	203	99.3	99.3

Table 2. Querried Sediment Chemistry Data.

Surface or Subsurface	Analyte	Number of Samples	Number Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
surface	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl (pg/g)	2	2	100	1130	2860 D	2000	1130	1130	1130	2860 D	2000	1130	1130
surface	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl (pg/g)	2	2	100	142 D	333 D	238	142 D	142 D	142 D	333 D	238	142 D	142 D
surface	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl (pg/g)	2	2	100	328	880 D	604	328	328	328	880 D	604	328	328
surface	2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl (pg/g)	2	2	100	284	865 D	575	284	284	284	865 D	575	284	284
surface	2,4'-DDD (ug/kg)	2	0	0						0.54 UJ	13 UJ	6.77	0.54 UJ	0.54 UJ
surface	2,4'-DDE (ug/kg)	1	0	0						2.3 U	2.3 U	2.3	2.3 U	2.3 U
surface	2,4'-DDT (ug/kg)	2	0	0						0.39 U	20 UJ	10.2	0.39 U	0.39 U
surface	4,4'-DDD (ug/kg)	2	0	0						1.3 UJ	11 UJ	6.15	1.3 UJ	1.3 UJ
surface	4,4'-DDE (ug/kg)	1	0	0						2.1 UJ	2.1 UJ	2.1	2.1 UJ	2.1 UJ
surface	4,4'-DDT (ug/kg)	2	0	0						0.4 U	4.7 U	2.55	0.4 U	0.4 U
surface	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/kg)	2	0	0						4.7 UJ	11 UJ	7.85	4.7 UJ	4.7 UJ
surface	Aldrin (ug/kg)	2	0	0						0.19 U	0.2 U	0.195	0.19 U	0.19 U
surface	alpha-Hexachlorocyclohexane (ug/kg)	2	0	0						0.19 U	0.33 U	0.26	0.19 U	0.19 U
surface	beta-Hexachlorocyclohexane (ug/kg)	2	0	0						1 U	2.8 U	1.9	1 U	1 U
surface	delta-Hexachlorocyclohexane (ug/kg)	2	0	0						0.19 U	0.2 U	0.195	0.19 U	0.19 U
surface	gamma-Hexachlorocyclohexane (ug/kg)	2	0	0						0.2 U	0.2 U	0.2	0.2 U	0.2 U
surface	cis-Chlordane (ug/kg)	2	0	0						0.2 U	0.25 U	0.225	0.2 U	0.2 U
surface	trans-Chlordane (ug/kg)	2	0	0						0.2 U	0.2 U	0.2	0.2 U	0.2 U
surface	Oxychlordane (ug/kg)	2	0	0						1 U	21 U	11	1 U	1 U
surface	cis-Nonachlor (ug/kg)	1	0	0						0.39 U	0.39 U	0.39	0.39 U	0.39 U
surface	trans-Nonachlor (ug/kg)	1	0	0						0.39 U	0.39 U	0.39	0.39 U	0.39 U
surface	Dieldrin (ug/kg)	2	0	0						0.4 U	1.2 U	0.8	0.4 U	0.4 U
surface	alpha-Endosulfan (ug/kg)	2	0	0						0.19 U	0.2 U	0.195	0.19 U	0.19 U
surface	beta-Endosulfan (ug/kg)	2	0	0						0.39 U	0.4 U	0.395	0.39 U	0.39 U
surface	Endosulfan sulfate (ug/kg)	1	0	0						0.39 U	0.39 U	0.39	0.39 U	0.39 U
surface	Endrin (ug/kg)	2	0	0						0.39 U	1.9 U	1.15	0.39 U	0.39 U
surface	Endrin aldehyde (ug/kg)	2	0	0						0.39 U	15 U	7.7	0.39 U	0.39 U
surface	Endrin ketone (ug/kg)	2	0	0						0.39 UJ	15 U	7.7	0.39 UJ	0.39 UJ
surface	Heptachlor (ug/kg)	2	0	0						0.19 U	0.2 U	0.195	0.19 U	0.19 U
surface	Heptachlor epoxide (ug/kg)	2	0	0						0.19 U	0.2 U	0.195	0.19 U	0.19 U
surface	Methoxychlor (ug/kg)	2	0	0						1.9 U	14 U	7.95	1.9 U	1.9 U
surface	Mirex (ug/kg)	2	0	0						0.39 U	13 U	6.7	0.39 U	0.39 U
surface	Toxaphene (ug/kg)	1	0	0						19 U	19 U	19	19 U	19 U
surface	2,3,4,6-Tetrachlorophenol (ug/kg)	2	0	0						96 U	590 U	343	96 U	96 U
surface	2,4,5-Trichlorophenol (ug/kg)	4	0	0						96 U	590 U	220	96 U	96 U
surface	2,4,6-Trichlorophenol (ug/kg)	4	0	0						96 U	590 U	220	96 U	96 U
surface	2,4-Dichlorophenol (ug/kg)	4	0	0						58 U	350 U	131	58 U	58 U
surface	2,4-Dimethylphenol (ug/kg)	4	0	0						19 U	350 U	112	19 U	58 U
surface	2,4-Dinitrophenol (ug/kg)	4	0	0						190 UJ	1200 U	443	190 UJ	190 U
surface	2-Chlorophenol (ug/kg)	4	0	0						19 U	120 UJ	44.3	19 U	19 U
surface	2-Methylphenol (ug/kg)	4	0	0						19 U	120 U	44.3	19 U	19 U
surface	2-Nitrophenol (ug/kg)	4	0	0						96 U	590 U	220	96 U	96 U
surface	4,6-Dinitro-2-methylphenol (ug/kg)	4	0	0						190 U	1200 U	443	190 U	190 U
surface	4-Chloro-3-methylphenol (ug/kg)	4	0	0						38 U	240 UJ	89	39 U	39 U
surface	4-Methylphenol (ug/kg)	4	0	0						19 U	120 U	44.3	19 U	19 U
surface	4-Nitrophenol (ug/kg)	4	0	0						96 U	590 UJ	220	96 U	96 UJ

Table 2. Querried Sediment Chemistry Data.

Surface or Subsurface	Analyte	Number of Samples	Number Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
surface	Pentachlorophenol (ug/kg)	4	1	25	47	47	47	47	47	47	98 UJ	84.3	96 UJ	96 UJ
surface	Phenol (ug/kg)	4	1	25	460 J	460 J	460	460 J	460 J	19 U	460 J	134	19 U	39 U
surface	2,3,4,5-Tetrachlorophenol (ug/kg)	2	0	0						96 U	590 U	343	96 U	96 U
surface	2,3,5,6-Tetrachlorophenol (ug/kg)	2	0	0						96 U	590 U	343	96 U	96 U
surface	Dimethyl phthalate (ug/kg)	4	0	0						19 U	120 U	44.3	19 U	19 U
surface	Diethyl phthalate (ug/kg)	4	0	0						19 U	120 U	44.3	19 U	19 U
surface	Dibutyl phthalate (ug/kg)	4	1	25	28	28	28	28	28	19 UJ	120 U	46.5	19 UJ	28
surface	Butylbenzyl phthalate (ug/kg)	4	1	25	183	183	183	183	183	19 U	183	85.3	19 U	120 U
surface	Di-n-octyl phthalate (ug/kg)	4	1	25	32	32	32	32	32	19 U	120 U	47.5	19 U	32
surface	Bis(2-ethylhexyl) phthalate (ug/kg)	4	2	50	2200	8430	5320	2200	2200	110 UJ	8430	2990	1200 UJ	2200
surface	Azobenzene (ug/kg)	2	0	0						19 U	120 U	69.5	19 U	19 U
surface	Bis(2-chloro-1-methylethyl) ether (ug/kg)	4	0	0						19 U	120 U	44.3	19 U	19 U
surface	2,4-Dinitrotoluene (ug/kg)	4	0	0						96 U	590 UJ	220	96 U	96 U
surface	2,6-Dinitrotoluene (ug/kg)	4	0	0						96 U	590 U	220	96 U	96 U
surface	2-Chloronaphthalene (ug/kg)	4	0	0						19 U	120 U	44.3	19 U	19 U
surface	2-Nitroaniline (ug/kg)	4	0	0						96 U	590 U	220	96 U	96 U
surface	3,3'-Dichlorobenzidine (ug/kg)	4	0	0						96 U	590 U	220	96 U	96 UJ
surface	3-Nitroaniline (ug/kg)	4	0	0						120 U	710 U	268	120 U	120 U
surface	4-Bromophenyl phenyl ether (ug/kg)	4	0	0						19 U	120 U	44.3	19 U	19 U
surface	4-Chloroaniline (ug/kg)	4	0	0						58 U	350 U	131	58 U	58 U
surface	4-Chlorophenyl phenyl ether (ug/kg)	4	0	0						19 U	120 U	44.3	19 U	19 U
surface	4-Nitroaniline (ug/kg)	4	0	0						96 U	590 U	220	96 U	96 U
surface	Aniline (ug/kg)	2	0	0						19 U	120 U	69.5	19 U	19 U
surface	Benzoic acid (ug/kg)	4	0	0						190 U	1200 U	443	190 U	190 U
surface	Benzyl alcohol (ug/kg)	4	0	0						19 UJ	590 U	181	19 UJ	96 U
surface	Bis(2-chloroethoxy) methane (ug/kg)	4	0	0						19 U	120 U	44.3	19 U	19 U
surface	Bis(2-chloroethyl) ether (ug/kg)	4	0	0						38 U	240 U	89	39 U	39 U
surface	Carbazole (ug/kg)	4	4	100	16.2	690	187	19 J	24 J	16.2	690	187	19 J	24 J
surface	Dibenzofuran (ug/kg)	4	2	50	7.77	300	154	7.77	7.77	7.77	300	86.4	19 U	19 U
surface	Hexachlorobenzene (ug/kg)	4	0	0						0.24 U	19 U	9.69	0.51 U	19 U
surface	Hexachlorobutadiene (ug/kg)	4	0	0						0.24 U	19 U	9.67	0.43 U	19 U
surface	Hexachlorocyclopentadiene (ug/kg)	4	0	0						96 UJ	590 U	220	96 UJ	96 U
surface	Hexachloroethane (ug/kg)	4	0	0						5.8 U	20 U	16	19 U	19 U
surface	Isophorone (ug/kg)	4	0	0						19 U	120 U	44.3	19 U	19 U
surface	Nitrobenzene (ug/kg)	4	0	0						19 U	120 U	44.3	19 U	19 U
surface	N-Nitrosodimethylamine (ug/kg)	2	0	0						96 U	590 U	343	96 U	96 U
surface	N-Nitrosodipropylamine (ug/kg)	4	0	0						38 UJ	240 UJ	89	39 UJ	39 U
surface	N-Nitrosodiphenylamine (ug/kg)	4	0	0						19 U	120 U	44.3	19 U	19 U
surface	1,2-Dichlorobenzene (ug/kg)	4	0	0						19 U	120 U	44.3	19 U	19 U
surface	1,3-Dichlorobenzene (ug/kg)	4	0	0						19 U	120 U	44.3	19 U	19 U
surface	1,4-Dichlorobenzene (ug/kg)	4	0	0						19 U	120 UJ	44.3	19 U	19 U
surface	1,2,4-Trichlorobenzene (ug/kg)	4	0	0						19 U	120 UJ	44.3	19 U	19 U
subsurface	Aroclor 1016 (ug/kg)	10	0	0						1.1 U	2.4 U	1.83	1.5 U	2.4 U
subsurface	Aroclor 1242 (ug/kg)	10	0	0						1.1 U	2.4 U	1.83	1.5 U	2.4 U
subsurface	Aroclor 1248 (ug/kg)	10	0	0						1.1 U	2.4 U	1.83	1.5 U	2.4 U
subsurface	Aroclor 1254 (ug/kg)	10	5	50	69	300	128	89	110 J	2.3 U	300	65.1	2.4 U	110 J

Table 2. Querried Sediment Chemistry Data.

Surface or Subsurface	Analyte	Number of Samples	Number Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
subsurface	Aroclor 1260 (ug/kg)	10	4	40	23	80	38.8	25	27	1.4 U	80	16.8	2.4 U	27
subsurface	Aroclor 1221 (ug/kg)	10	0	0						1.1 U	2.4 U	1.83	1.5 U	2.4 U
subsurface	Aroclor 1232 (ug/kg)	10	0	0						1.1 U	2.4 U	1.83	1.5 U	2.4 U
subsurface	Polychlorinated biphenyls (ug/kg)	10	5	50	94	300	159	114	190 J	2.3 U	300	80.6	2.4 U	190 J
subsurface	Butyltin ion (ug/kg)	9	3	33.3	0.82	5	2.61	2	2	0.6 UJ	5	1.28	0.63 U	2
subsurface	Dibutyltin ion (ug/kg)	9	5	55.6	1.1 J	25	11	2.4	24	0.93 UJ	25	6.51	1.1 J	24
subsurface	Tributyltin ion (ug/kg)	10	5	50	2.6	150	47.7	11	67	0.46 UJ	150	24.1	0.47 UJ	67
subsurface	Tetrabutyltin (ug/kg)	10	1	10	1.4	1.4	1.4	1.4	1.4	1.1 UJ	1.5 U	1.2	1.1 U	1.4 U
subsurface	Total organic carbon (percent)	11	11	100	0.04 J	2.4	0.756	0.3	2.06	0.04 J	2.4	0.756	0.3	2.06
subsurface	Gravel (percent)	11	11	100		1.8	0.376	0.07	1.47	0	1.8	0.376	0.07	1.47
subsurface	Sand (percent)	1	1	100	34.79	34.79	34.8	34.79	34.79	34.79	34.79	34.8	34.79	34.79
subsurface	Very coarse sand (percent)	10	10	100	0.3	13.3	4.16	1.97	9.32	0.3	13.3	4.16	1.97	9.32
subsurface	Coarse sand (percent)	10	10	100	0.81	12.7	5.94	4.98	10.8	0.81	12.7	5.94	4.98	10.8
subsurface	Medium sand (percent)	10	10	100	11	69.8	49.4	58.1	69.6	11	69.8	49.4	58.1	69.6
subsurface	Fine sand (percent)	10	10	100	6.44	25.1	17.3	15.4	25	6.44	25.1	17.3	15.4	25
subsurface	Very fine sand (percent)	10	10	100	0.07	13.1	1.67	0.19	1.96	0.07	13.1	1.67	0.19	1.96
subsurface	Fines (percent)	1	1	100	63.41	63.41	63.4	63.41	63.41	63.41	63.41	63.4	63.41	63.41
subsurface	Silt (percent)	11	11	100	0.71	47.6	19.2	8.86	47.3	0.71	47.6	19.2	8.86	47.3
subsurface	Clay (percent)	11	11	100	0.4	17.1	6.29	2.98	16.56	0.4	17.1	6.29	2.98	16.56
subsurface	Aluminum (mg/kg)	1	1	100	38300	38300	38300	38300	38300	38300	38300	38300	38300	38300
subsurface	Antimony (mg/kg)	11	9	81.8	0.05 J	0.392 J	0.211	0.262 J	0.371 J	0.05 UJ	4 UJ	0.541	0.262 J	0.392 J
subsurface	Arsenic (mg/kg)	11	10	90.9	1.1	3.18	2.08	1.9	2.98	1.1	4 U	2.25	1.98	3.18
subsurface	Cadmium (mg/kg)	11	11	100	0.04 J	0.8	0.232	0.096	0.48	0.04 J	0.8	0.232	0.096	0.48
subsurface	Chromium (mg/kg)	1	1	100	37.8	37.8	37.8	37.8	37.8	37.8	37.8	37.8	37.8	37.8
subsurface	Copper (mg/kg)	11	11	100	11.8	57.5	21.2	13.6	29.3	11.8	57.5	21.2	13.6	29.3
subsurface	Lead (mg/kg)	11	11	100	2.28	41	13.7	7.87	30.5	2.28	41	13.7	7.87	30.5
subsurface	Manganese (mg/kg)	1	1	100	495	495	495	495	495	495	495	495	495	495
subsurface	Mercury (mg/kg)	11	8	72.7	0.01 J	0.27	0.106	0.06	0.25	0.01 J	0.27	0.08	0.04	0.25
subsurface	Nickel (mg/kg)	11	11	100	14	30	17.7	16.3	19.1	14	30	17.7	16.3	19.1
subsurface	Selenium (mg/kg)	1	1	100	8	8	8	8	8	8	8	8	8	8
subsurface	Silver (mg/kg)	11	11	100	0.02 J	1.5	0.258	0.091	0.442	0.02 J	1.5	0.258	0.091	0.442
subsurface	Thallium (mg/kg)	1	0	0						4 U	4 U	4	4 U	4 U
subsurface	Zinc (mg/kg)	11	11	100	33	255	74.8	51.1	107	33	255	74.8	51.1	107
subsurface	Barium (mg/kg)	1	1	100	175	175	175	175	175	175	175	175	175	175
subsurface	Beryllium (mg/kg)	1	1	100	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59
subsurface	Calcium (mg/kg)	1	1	100	8240	8240	8240	8240	8240	8240	8240	8240	8240	8240
subsurface	Cobalt (mg/kg)	1	1	100	16.3	16.3	16.3	16.3	16.3	16.3	16.3	16.3	16.3	16.3
subsurface	Iron (mg/kg)	1	1	100	39900	39900	39900	39900	39900	39900	39900	39900	39900	39900
subsurface	Magnesium (mg/kg)	1	1	100	6630	6630	6630	6630	6630	6630	6630	6630	6630	6630
subsurface	Potassium (mg/kg)	1	1	100	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330
subsurface	Sodium (mg/kg)	1	1	100	1120 J	1120 J	1120	1120 J	1120 J	1120 J	1120 J	1120	1120 J	1120 J
subsurface	Vanadium (mg/kg)	1	1	100	98.7	98.7	98.7	98.7	98.7	98.7	98.7	98.7	98.7	98.7
subsurface	2-Methylnaphthalene (ug/kg)	21	9	42.9	0.65 J	390	94	11	290	0.27 U	390	40.7	1.6 UJ	100
subsurface	Acenaphthene (ug/kg)	21	9	42.9	0.33 J	640	128	22	350	0.27 U	640	55.1	1.3 U	85
subsurface	Acenaphthylene (ug/kg)	21	9	42.9	1 J	130	40.2	25	94	0.21 U	130	17.7	1.8 U	42
subsurface	Anthracene (ug/kg)	21	11	52.4	0.39 J	550	108	21	340	0.25 U	550	56.9	1.9 U	95

Table 2. Querried Sediment Chemistry Data.

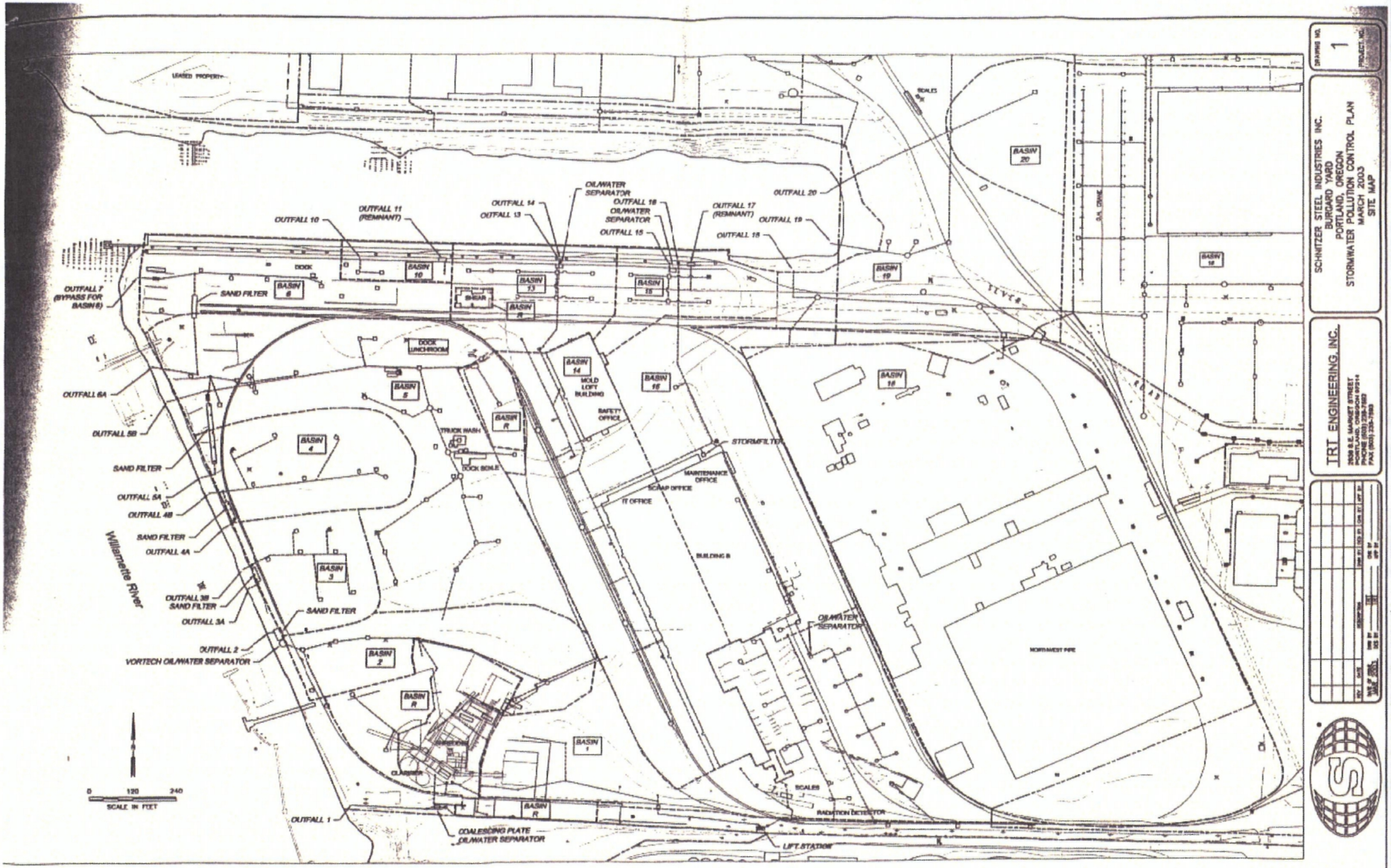
Surface or Subsurface	Analyte	Number of Samples	Number Detected	% Detected	Detected Concentrations					Detected and Nondetected Concentrations				
					Minimum	Maximum	Mean	Median	95th	Minimum	Maximum	Mean	Median	95th
subsurface	Fluorene (ug/kg)	21	9	42.9	0.76 J	520	106	19	290	0.22 U	520	46.1	2.2 U	76
subsurface	Naphthalene (ug/kg)	21	12	57.1	0.3 J	1000	190	19	740	0.28 U	1000	109	1.7 U	270
subsurface	Phenanthrene (ug/kg)	21	13	61.9	0.3 J	2700	397	45	1400	0.2 U	2700	246	2.4 J	380
subsurface	Low Molecular Weight PAH (ug/kg)	21	12	57.1	0.6 A	5504 A	959	100.1 J	3540	0.28 UA	5504 A	548	2.4 U	1028
subsurface	Dibenz(a,h)anthracene (ug/kg)	21	12	57.1	0.35 J	220	40.1	9.8 J	92 J	0.24 U	220	23.6	2.9 U	61
subsurface	Benz(a)anthracene (ug/kg)	21	12	57.1	1.3 J	890	186	48	560	0.17 U	890	107	2.4 J	230
subsurface	Benzo(a)pyrene (ug/kg)	21	12	57.1	1.4 J	930	248	72	790	0.19 U	930	143	6.6 J	420
subsurface	Benzo(b)fluoranthene (ug/kg)	21	11	52.4	1.3 J	790	211	160	510	0.19 U	790	111	3.3 U	270
subsurface	Benzo(g,h,i)perylene (ug/kg)	21	15	71.4	0.22 J	920	183	50	740	0.14 U	920	131	3 U	370
subsurface	Benzo(k)fluoranthene (ug/kg)	21	11	52.4	1.3 J	460	147	120	430	0.2 U	460	77.8	3.3 U	220
subsurface	Chrysene (ug/kg)	21	12	57.1	1.9 J	1100	239	58	710	0.2 U	1100	137	2.5 J	300
subsurface	Fluoranthene (ug/kg)	21	12	57.1	2.3 J	2100	423	49	1400	0.22 U	2100	242	3.9 J	660
subsurface	Indeno(1,2,3-cd)pyrene (ug/kg)	21	14	66.7	0.21 J	680	168	43	620	0.2 U	680	112	2.5 U	350
subsurface	Pyrene (ug/kg)	21	13	61.9	0.22 J	2600	539	97	2100	0.15 U	2600	334	5.6 J	950
subsurface	Benzo(b+k)fluoranthene (ug/kg)	11	7	63.6	18.4 J	1220 A	451	390	970	3.2 U	1220 A	288	73	970
subsurface	High Molecular Weight PAH (ug/kg)	21	16	76.2	0.31 A	10660 A	1850	113.88 A	7982 J	0.24 UA	10660 A	1410	16.8 J	3786 A
subsurface	Polycyclic Aromatic Hydrocarbons (ug/kg)	21	16	76.2	0.31 A	16164 A	2550	147.4 A	11232 A	0.28 UA	16164 A	1940	19.2 A	4540 A
subsurface	4,4'-DDD (ug/kg)	10	5	50	0.47 J	20	5.77	2.4	5.5	0.1 U	20	2.94	0.11 U	5.5
subsurface	4,4'-DDE (ug/kg)	10	3	30	4.1 J	17 J	8.6	4.7 J	4.7 J	0.13 U	17 J	2.77	0.13 U	4.7 J
subsurface	4,4'-DDT (ug/kg)	10	1	10	2.6	2.6	2.6	2.6	2.6	0.22 U	6.3 UM	2.27	0.23 U	5.2 UM
subsurface	Total of 3 isomers: pp-DDT,-DDD,-DDE (ug/kg)	10	5	50	0.47 J	37 J	11.5	6.5 J	10.2 J	0.22 U	37 J	5.84	0.23 U	10.2 J
subsurface	Aldrin (ug/kg)	10	2	20	1.2 J	2.4 J	1.8	1.2 J	1.2 J	0.12 U	2.4 J	0.506	0.12 U	1.2 J
subsurface	gamma-Hexachlorocyclohexane (ug/kg)	10	1	10	0.63 J	0.63 J	0.63	0.63 J	0.63 J	0.22 U	1.6 UM	0.724	0.23 U	1.5 UM
subsurface	cis-Chlordane (ug/kg)	10	1	10	0.36 J	0.36 J	0.36	0.36 J	0.36 J	0.13 U	0.36 J	0.167	0.14 U	0.19 UM
subsurface	Dieldrin (ug/kg)	10	0	0						0.14 U	0.2 U	0.16	0.15 U	0.19 U
subsurface	Heptachlor (ug/kg)	10	0	0						0.21 U	0.29 U	0.231	0.22 U	0.28 U
subsurface	2,4,5-Trichlorophenol (ug/kg)	1	0	0						98 U	98 U	98	98 U	98 U
subsurface	2,4,6-Trichlorophenol (ug/kg)	1	0	0						98 U	98 U	98	98 U	98 U
subsurface	2,4-Dichlorophenol (ug/kg)	1	0	0						59 U	59 U	59	59 U	59 U
subsurface	2,4-Dimethylphenol (ug/kg)	11	0	0						7 U	95 U	16.8	7.4 U	20 U
subsurface	2,4-Dinitrophenol (ug/kg)	1	0	0						200 UJ	200 UJ	200	200 UJ	200 UJ
subsurface	2-Chlorophenol (ug/kg)	1	0	0						20 U	20 U	20	20 U	20 U
subsurface	2-Methylphenol (ug/kg)	11	0	0						4.4 U	59 U	11.1	4.6 U	20 U
subsurface	2-Nitrophenol (ug/kg)	1	0	0						98 U	98 U	98	98 U	98 U
subsurface	4,6-Dinitro-2-methylphenol (ug/kg)	1	0	0						200 UJ	200 UJ	200	200 UJ	200 UJ
subsurface	4-Chloro-3-methylphenol (ug/kg)	1	0	0						39 U	39 U	39	39 U	39 U
subsurface	4-Methylphenol (ug/kg)	11	6	54.5	5.1 J	230	87.9	13	190	3.7 U	230	49.6	5.1 J	190
subsurface	4-Nitrophenol (ug/kg)	1	0	0						98 U	98 U	98	98 U	98 U
subsurface	Pentachlorophenol (ug/kg)	11	0	0						11 U	150 U	32.6	12 U	98 UJ
subsurface	Phenol (ug/kg)	11	5	45.5	2.5 J	11 J	7.04	6.2 J	10 J	2.5 J	33 U	8.93	5.5 J	20 U
subsurface	Dimethyl phthalate (ug/kg)	11	0	0						2.3 U	32 U	6.81	2.4 U	20 U
subsurface	Diethyl phthalate (ug/kg)	11	0	0						4.5 U	61 U	11.4	4.7 U	20 U
subsurface	Dibutyl phthalate (ug/kg)	11	2	18.2	7.8 J	23	15.4	7.8 J	7.8 J	3.3 U	45 U	10.9	3.5 U	23
subsurface	Butylbenzyl phthalate (ug/kg)	11	3	27.3	7.5 J	170	68.5	28	28	1.9 U	170	24	2.1 U	28
subsurface	Di-n-octyl phthalate (ug/kg)	11	0	0						1.6 U	21 U	5.15	1.6 U	20 U
subsurface	Bis(2-ethylhexyl) phthalate (ug/kg)	11	11	100	5 J	770 J	127	24 J	250	5 J	770 J	127	24 J	250

Table 2. Querried Sediment Chemistry Data.

Surface or Subsurface	Analyte	Number of Samples	Number Detected	% Detected	Detected Concentrations Minimum	Maximum	Mean	Median	95th	Detected and Nondetected Concentrations Minimum	Maximum	Mean	Median	95th
subsurface	Bis(2-chloro-1-methylethyl) ether (ug/kg)	1	0	0						20 U	20 U	20	20 U	20 U
subsurface	2,4-Dinitrotoluene (ug/kg)	1	0	0						98 U	98 U	98	98 U	98 U
subsurface	2,6-Dinitrotoluene (ug/kg)	1	0	0						98 U	98 U	98	98 U	98 U
subsurface	2-Chloronaphthalene (ug/kg)	1	0	0						20 U	20 U	20	20 U	20 U
subsurface	2-Nitroaniline (ug/kg)	1	0	0						98 U	98 U	98	98 U	98 U
subsurface	3,3'-Dichlorobenzidine (ug/kg)	1	0	0						98 U	98 U	98	98 U	98 U
subsurface	3-Nitroaniline (ug/kg)	1	0	0						120 UJ	120 UJ	120	120 UJ	120 UJ
subsurface	4-Bromophenyl phenyl ether (ug/kg)	1	0	0						20 U	20 U	20	20 U	20 U
subsurface	4-Chloroaniline (ug/kg)	1	0	0						59 U	59 U	59	59 U	59 U
subsurface	4-Chlorophenyl phenyl ether (ug/kg)	1	0	0						20 U	20 U	20	20 U	20 U
subsurface	4-Nitroaniline (ug/kg)	1	0	0						98 UJ	98 UJ	98	98 UJ	98 UJ
subsurface	Benzoic acid (ug/kg)	11	0	0						130 U	1700 U	286	130 U	200 U
subsurface	Benzyl alcohol (ug/kg)	11	1	9.09	7.9 J	7.9 J	7.9	7.9 J	7.9 J	4.7 U	64 U	12	5 U	20 UJ
subsurface	Bis(2-chloroethoxy) methane (ug/kg)	1	0	0						20 U	20 U	20	20 U	20 U
subsurface	Bis(2-chloroethyl) ether (ug/kg)	1	0	0						39 U	39 U	39	39 U	39 U
subsurface	Carbazole (ug/kg)	1	1	100	93 J	93 J	93	93 J	93 J	93 J	93 J	93	93 J	93 J
subsurface	Dibenzofuran (ug/kg)	21	9	42.9	0.32 J	240	46.7	9.2 J	110	0.26 U	240	20.5	1.7 UJ	40
subsurface	Hexachlorobenzene (ug/kg)	11	0	0						2.7 U	37 U	7.62	2.8 U	20 U
subsurface	Hexachlorobutadiene (ug/kg)	11	0	0						1.8 U	25 U	5.72	1.9 U	20 U
subsurface	Hexachlorocyclopentadiene (ug/kg)	1	0	0						98 UJ	98 UJ	98	98 UJ	98 UJ
subsurface	Hexachloroethane (ug/kg)	11	0	0						2.8 U	38 U	7.81	3 U	20 U
subsurface	Isophorone (ug/kg)	1	0	0						20 U	20 U	20	20 U	20 U
subsurface	Nitrobenzene (ug/kg)	1	0	0						20 U	20 U	20	20 U	20 U
subsurface	N-Nitrosodipropylamine (ug/kg)	1	0	0						39 U	39 U	39	39 U	39 U
subsurface	N-Nitrosodiphenylamine (ug/kg)	11	0	0						2.8 U	38 U	7.81	3 U	20 UJ
subsurface	1,2-Dichlorobenzene (ug/kg)	11	0	0						1.7 U	23 U	5.42	1.8 U	20 U
subsurface	1,3-Dichlorobenzene (ug/kg)	11	0	0						2.1 U	28 U	6.23	2.2 U	20 U
subsurface	1,4-Dichlorobenzene (ug/kg)	11	0	0						2.5 U	33 U	7.03	2.6 U	20 U
subsurface	1,2,4-Trichlorobenzene (ug/kg)	11	0	0						1.9 U	26 U	5.94	2 U	20 U

SUPPLEMENTAL FIGURES

Figure 1. Stormwater Pollution Control Plan Site Map (SSI 2003)
Figure 2-1. Phase I Explorations-SW Area (Bridgewater 2002a)
Figure 3. Monitoring Well and Push Probe Locations - SSI Area (Bridgewater 2003b)



SCHNITZER STEEL INDUSTRIES INC.
BURGARD YARD
PORTLAND, OREGON
STORMWATER POLLUTION CONTROL PLAN
MARCH 2003
SITE MAP
TRT ENGINEERING, INC.
DRAWING NO.
1
PROJECT NO.
LEASED PROPERTY
Willamette River
SCALE IN FEET
0
120
240
OUTFALL 1
COALESCING PLATE
OIL/WATER SEPARATOR
LIFT STATION
RADIATION DETECTOR
SCALES
CLARIFIER
BASIN R
BASIN 1
BASIN 2
VORTECH OIL/WATER SEPARATOR
OUTFALL 2
SAND FILTER
OUTFALL 3A
SAND FILTER
OUTFALL 3B
BASIN 3
OUTFALL 4A
SAND FILTER
OUTFALL 4B
OUTFALL 5A
SAND FILTER
OUTFALL 5B
BASIN 4
OUTFALL 6A
BASIN 5
DOCK LUNCHROOM
OUTFALL 7 (BYPASS FOR BASIN 6)
SAND FILTER
BASIN 6
DOCK
OUTFALL 10
OUTFALL 11 (REMNANT)
BASIN 10
SHEAR
BASIN 13
OUTFALL 14
OUTFALL 13
OIL/WATER SEPARATOR
OUTFALL 16
OIL/WATER SEPARATOR
OUTFALL 15
BASIN 15
OUTFALL 17 (REMNANT)
OUTFALL 19
OUTFALL 18
BASIN 19
OUTFALL 20
BASIN 20
BASIN 18
TRUCK WASH
DOCK SCALE
BASIN 14
MOLD LOFT BUILDING
SAFETY OFFICE
BASIN 16
STORMFILTER
MAINTENANCE OFFICE
SCRAP OFFICE
IT OFFICE
BUILDING B
OIL/WATER SEPARATOR
BASIN 18
NORTHWEST PIPE

Monitoring Well
Push Probe

Approximate Scale
220 feet

N

Figure 2-1
Phase I Explorations-SW Area
Burgard Industrial Park

BRIDGEWATER GROUP, INC.

N

Approximate Scale

220 feet

Monitoring Well

Phase I Push Probe

Phase II Push Probe

Figure 3

Monitoring Well and Push Probe Locations - SSI Area

Burgard Industrial Park

BRIDGEWATER GROUP, INC.

to mid-1980s
–groundwater wells have been installed as part of the remedial investigation, which is almost complete
–current interim action of pumping groundwater and treating; appears to be keeping pentachlorophenol contaminants from reaching the river
–in addition, a gasoline release does not appear to have made it to river

<u>First Premier Edible Oils (Schnitzer)</u>
–bulk petroleum tanks were on this site for two years
–the facility processed coconut oils, and other food oils
–site contaminants include petroleum hydrocarbons (DRO) in water, chlorinated solvents
–off-site Time Oil plume may be coming on site
–contaminants do not appear to be moving to river, but are observable in groundwater
–recommended three samples (one near dock, two deep downstream of groundwater samples)

<u>International Slip (Schnitzer)</u>
–many outfalls, most will be sampled
–outfalls along south side are from Schnitzer Steel, outfall at southwest corner from Northwest Pipe
–tributyl tin (TBT) detected at mouth of the slip

<u>Northwest Pipe (Schnitzer)</u>
–started operating in 1970s
–produces large-diameter pipes (greater than 5 feet)
–numerous employee complaints over the years
–evidence of shallow groundwater containing chlorinated solvents
–has one outfall (#18) into the International Slip
–company used to be Northwest Pipe and Casing (also owned facility in Clackamas)

<u>Schnitzer Steel</u>
–bulk petroleum tanks now on Time Oil property originally were here
–property was a major shipyard in WWII
–Schnitzer purchased the property in the 1980s
–now used as a steel scrapyard, mostly to scrap cars, operating a shredder and shearer
–groundwater contains low petroleum hydrocarbons, chlorinated solvents, phthalates, metals
–stormwater conveyance is main concern, with 24 outfalls
–chronic exceedances for metals
–there are seeps into the International Slip
–engineering controls are underway for stormwater system
–Schnitzer collected sediment data recently, but have not provided it to DEQ

<u>Jefferson Smurfit (Schnitzer)</u>